REPORT
ON THE
1989 INDUSTRIAL
DIRECT DISCHARGES
IN ONTARIO

JUNE 1991

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REPORT ON THE 1989 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO

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EXECUTIVE SUMMARY

The 1989 Industrial Direct Discharge Report is the annual update of the status of industrial direct dischargers in Ontario. This Report is a public record regarding the quality of industrial point source waste water effluent discharged to the natural environment and the actions undertaken by the Ministry of the Environment to correct problem discharges.

Performance of the dischargers is measured on a monthly basis using conventional parameters such as suspended solids, biochemical oxygen demand, oil and grease, phosphorus and ammonia. Heavy metals such as copper, lead, zinc, nickel and iron are amongst other parameters reported.

Compliance is measured against effluent limits which are either guidelines or site- specific legal requirements (contained in Control Orders or Certificates of Approval). The compliance status is summarized in Table 1, which includes the year in which compliance is expected to be achieved.

One hundred and seventy (170) industries are reported in this year's Report, as compared to 168 in 1988. Five (5) new sources have been added while three (3) sources were dropped from this report. Two are now discharging to a municipal sewer system and one site closed down in 1989.

The number of dischargers in compliance with guidelines and/or requirements in 1989 on a monthly basis was 77 (45.3%) out of 170. The percent compliance is essentially the same as that for 1988 when 77 (45.8%) out of 168 sources were in compliance.

Although there was no net improvement in the overall percentage compliance in the period from 1988 to 1989, 14 companies that were not in compliance in 1988 achieved compliance in 1989. At the same time, however, 19 companies that were in compliance in 1988 were out of compliance in 1989.

The reasons for non-compliance varied from isolated incidents to basic deficiencies in treatment.

A Ministry review of actions taken by dischargers in 1990 to address 1989 non-compliance, showed that 65 dischargers must take further action to be in compliance.

This Report also presents the status of the MISA program as of January 1991. MISA data have been used for compliance assessment for three sectors - Petroleum Refining (12 mos.), Organic Chemicals Manufacturing (3 mos.), and Iron and Steel (2 mos.).

Information on spills is not included in this Report. Summary information about spills is published annually in a report by the Spills Action Centre. The most recent report, Spills Action Centre Summary Report of 1989 Occurrences, contains information about the number and causes of spills, and the types and quantities of materials spilled by each industrial sector. The names of individual companies are not included in the report, but can be obtained by writing to the Spills Action Centre.

REPORT ON INDUSTRIAL DIRECT DISCHARGES

ONTARIO 1989

1.0 INTRODUCTION

The Ontario Ministry of the Environment (MOE) Report on Industrial Direct Discharges for the year 1989 continues to include information published on sources in the 1988 Report. Part of the information in this Report meets the requirements of Article VI 1(c) of the 1978 Great Lakes Water Quality Agreement (GLWQA revised November 18, 1987. The Agreement states that an annual report, which includes compliance schedules and the status of compliance with monitoring and effluent requirements, shall be provided to the International Joint Commission (IJC) and to the public. The portions of the Report which present the aforementioned information are Appendix C and Appendix E.

Additional industrial sources are included in this Report, over and above those included in the 1988 Report. The effluent loadings and loading limits for 170 individual industrial plants are contained in this Report, whereas in 1988 the number of sources reported was 168. Of the sources reported in 1988, 165 are reported herein; two of the original 168 sources now discharge to a municipal sewer and the other one ceased operations in 1989.

Not all of the direct discharges that the Ministry deals with have been entered into the Industrial Monitoring Information System (IMIS). For example, plants from which the discharge is predominately cooling water, such as thermal electric power plants, are not currently contained in the IMIS data base. However, all plants in the Electric Power Generating Sector are covered by the MISA Program, and data about discharges from these facilities will eventually be incorporated into IMIS. Further, the majority of the province's approximately 12,000 to 18,000 indirect industrial plants are not included in this Report since these plants discharge into municipal sewers, and the process wastewaters are treated by municipal sewage treatment plants (STPs). Information about the quality and quantity of discharges from municipal STPs is published under separate cover.

For 1989, the actual monthly and annual average pollutant loadings and flows, as well as requirements and/or guidelines are shown for each source. These requirements may be legal limits (Control Order, Certificate of Approval, Requirement and Direction, Federal Regulation), while the guidelines may be the Ministry's industrial concentration guideline objectives or Federal guideline criteria. In addition, this Report continues to provide self-monitoring data supplied by dischargers for conventional pollutants.

2.0 INDUSTRIAL DISCHARGES - 1989 DATA

The bulk of this Report consists of the Wastewater Discharge Summary contained in Appendix A. The summary sheets in Appendix A are arranged in alphabetical order by company name. In past Reports for some dischargers, only total loadings were shown although the total was obtained from several pipe discharges. This Report now includes all pipe discharges. For the Petroleum Refining, Organic Chemicals Manufacturing, and Iron and Steel industrial sectors, where MISA data are used to calculate the mass loading to the environment, the loadings reported are 'gross' values. Sources discharging to major drainage basins are listed according to drainage basin in Appendix C.

Net and Gross Data Reporting

In previous Reports, pollutant loadings were identified as being either gross or net values. Most loadings were reported as gross; where the effluent loading had been adjusted for the intake water contribution the loading was a net value.

With the advent of the MISA program, loadings are now being reported as gross loadings only. Although in theory net loadings can be caluclated by subtracting, from the the mass of a given contaminant discharged in an effluent, the mass of that same contaminant which came from the intake water, there are no practical means of separately quantifying the impact of intake contaminants on the final performance data. Further, the nature of contaminants originally present in intake water can change as a result of treatment.

The conversion to reporting gross loadings will result in an apparent increase in the loading numbers reported for some dischargers. However, these reported increases do not necessarily imply a decrease in effluent quality, nor do they imply an actual increase in the effluent loadings being discharged. Rather, they reflect a change in the loading calculation. Where this change has occurred, the data reported for 1989 cannot be compared to that of previous years.

Those dischargers for which previous reports presented net loadings, and consequently those affected by the change in loading calculation method, are: Dofasco, Dow, Dupont (Corunna), Esso Chemical, Esso Petroleum (Jarvis and Sarnia), Nova Petrochemicals (Corunna and Sarnia), Shell Canada, Stelco and Suncor.

The compliance section of this Report, along with Appendix A, presents the following information about each discharger:

1) The name of the discharger and the municipality in which the plant is located.

2) The Ministry of the Environment Region and the District Office that deals with the discharger.

3) Its MISA sector name.

4) The receiving water body.

5) A description of the industrial activity.

6) Effluent characteristics as related to the industrial activity.

7) Effluent treatment equipment and systems.

8) The nature of the flow--continuous or intermittent; the means of discharge--surface, open pipe, submerged diffuser, or drainage ditch, and the number of discharge points.

9) A compliance summary statement for each discharger based on the number of individual monthly limits exceeded out of the total number of monthly parameters monitored with limits.

10) Comments on the effluent, in particular where the actual pollutant value has exceeded the limit which may be a guideline or a requirement.

11) The individual discharge points or pipes for each source are shown, if there is more than one discharge pipe.

12) Compliance is assessed as in previous Reports. For some sources, compliance is judged on one or two key discharges, although more discharge pipes are reported. In some cases, the legal limit is based on net loadings and compliance is assessed using net loadings.

13) The average monthly effluent flow discharged by the source.

14) The average monthly pollutant load discharged by the source, and limits which may be a guideline a legal number (set by Control Order, Requirement and Direction, Certificate of Approval or Federal Regulation). Some discharges are seasonal and, thus, twelve monthly results are not available. Some pollutants are measured on a quarterly or semi-annual basis.

15) Ministry fish toxicity data is provided for some industries. In addition, self-monitoring toxicity data provided by the Petroleum Refining Sector is also given.

16) Data on pollutants which are monitored but which are not limited.

3.0 EFFLUENT LIMITS

The Ontario Ministry of the Environment presently employs a variety of measures to control direct discharges, including voluntary measures, formal programs, Control Orders, Requirements and Direction and Certificates of Approval. The Municipal-Industrial Strategy for Abatement (MISA) will set legally enforceable limits across the province (see Section 6.0).

The implementation of pollution control is a co-operative federal/provincial endeavour. Federal Guidelines set minimum acceptable national objectives for existing plants (see Appendix F), while Federal Regulations prescribe national effluent limitations for new and expanded plants in several industrial sectors; the only exception is the Federal Regulation for chlor-alkali plants, which applies to both existing and new facilities.

Ontario has agreed, under the Canada-Ontario Accord for the Protection and Enhancement of Environmental Quality, to adopt provincial pollution control requirements which are at least as stringent as the national objectives. Since most Ontario plants are in the "existing" category, Federal Guidelines apply to several industries identified in this Report. Currently, Federal Effluent Guidelines and Regulations under the Fisheries Act apply to: Pulp and Paper (1971), Petroleum Refineries (1973), Metal Mining (1977), Mercury Cell Chlor-alkali Plants (1977), Metal Finishing (1977), and Meat and Poultry Processing Plants (1977) plants.

3.1 Legal Requirements

Legally enforceable Control Orders under Section 6 of the Environmental Protection Act may be issued to any existing plant. Control Orders define abatement actions and compliance dates by which these actions must be completed. Legally enforceable Requirements and Directions may also be issued under Section 51 of the Ontario Water Resources Act.

As described above, for some sources there are Federal Regulation limits under the Fisheries Act.

Certificates of Approval (C's of A) for wastewater treatment works are issued under the Ontario Water Resources Act. In the past, the C of A was an approval to install pollution control equipment with the expected effluent quality, used as the basis for design, sometimes shown in the C of A. New Certificates of Approvals include effluent limits which are legally enforceable. These new C of A limits usually include monitoring and reporting requirements.

3.2 Effluent Guideline Limits

Historically, for most sources, Ontario set effluent objectives either on a concentration basis or on a receiving water quality criteria. If the discharge from a site met Ontario's Provincial Water Quality Objectives for a specific contaminant, then industrial guideline concentrations were used as objectives.

The 'concentration' approach was incorporated into a guidance document entitled "Objectives for the Control of Industrial Waste Discharges in Ontario (Provincal) 1966", and was based initially on experience with municipal sewage treatment systems. It was presumed that treated industrial effluents should have the same pollutant concentrations as treated municipal effluent. However, since industrial effluents are quite different from municipal effluents in regard to specific pollutants, pollutant concentration and volume flow, application of the same treatment technology did not result in similar treated effluent concentrations. Industrial wastewater effluents in many cases would require dilution by cooling water, etc. to meet the effluent concentrations. Guidelines allow for these differences where similar treatment technology has been installed. Appendices F-3, F-4 and F-5 presents the guideline values used in the majority of cases in this report to measure acceptable effluent quality.

Many plants now have limits set on a loading basis (i.e. kilograms discharged per day) rather than on an effluent concentration basis. This recognizes that it is the loadings to the environment rather than concentrations that are important.

Ontario also uses "the water quality approach" (the Ministry of the Environment's Blue Book: Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment. November 1978. Revised May 1984.) in setting effluent limits. For contaminants which are not considered to be persistent toxic contaminants, every river or lake has a definable assimilation (self-purification) capacity.

Some plants employ secondary treatment facilities to reduce biodegradable discharges; some of these biodegradable compounds may be toxic but relatively non-persistent. Some contaminants are much more amenable to biodegradation than others. Water quality considerations take precedence when degradable discharges exceed the assimilative capacity of the receiving waters, but are within the limits set by federal Guidelines or Regulations. In these cases more stringent requirements, based on the limited assimilative capacity, are used to set effluent loading limits. For example, a Control Order or C. of A. may set a BOD loading limit to meet the Provincial Water Quality objective for dissolved oxygen in the receiving water.

3.3 Toxicity

Effluents in the Province have been assessed for toxicity using a static lethality test employing rainbow trout. The Ministry's approach to toxicity monitoring is quantitative, ie. we do not determine only whether an effluent is toxic or not toxic but measure how toxic it is.

The test measures the concentration of effluent that will kill 50% of the test fish in four days (96 hr LC50). This report includes acute toxicity data from bioassays conducted by Environment Ontario Rexdale Laboratories or through contract with Booth Aquatic Research in Guelph and Pollutech Ltd. in Sarnia. Also in this year's edition, additional acute toxicity data submitted by companies regulated by the MISA monitoring regulations have been included. Not all company summaries show MISA acute toxicity data although the monitoring regulations affect all direct dischargers in Ontario. This can be explained by the different promulgation dates of each sector regulation through the 1988 and 1989 years. While some industrial sectors would have been completing its year of monitoring, another may only have been starting. Also some sectors were not under regulation in 1989, therefore no data would have been expected, other than data generated by Ministry monitoring programs. This report includes only a portion of the total 12 months of MISA acute toxicity monitoring, since monitoring periods did not coincide with a calendar year. For a complete review of acute toxicity data generated by the MISA Monitoring Regulations, please refer to MISA Acute Toxicity Publications. ("Acute Lethality data For Ontario's Petroleum Refinery Effluents Covering the Period From December 1988 to May 1989". MOE June 1990;"Acute Lethality Data For Ontario's Petroleum Refinery Effluents Covering The Period From June 1989 to November 1989". MOE Dec. 1990;"Acute Lethality Data For Ontario's Organic Chemical Manufacturing Sector Effluents Covering The Period From October To March 1990". in draft). Where the summaries indicate the company has submitted acute toxicity data to the MOE, the data has been generated by private laboratories under contract to the company. A more detailed discussion of toxicity appears in Section 9.0 - Notes on Toxicity, page 82.

4.0 COMPLIANCE AND EXCEEDANCES

The term 'compliance' in the context of this report indicates that the effluent data recorded in this report are not exceeding the limits for a given parameter, location and time. There may indeed have been violations of Ministry Acts, Regulations and control documents, and ensuing prosecutions during any period in which an industry may have been shown as being in compliance. Spills, for example, may cause violations which are not reported in this document but are compiled separately.

Non-compliance is currently expressed in terms of the number of times in the calendar year that any discharger exceeds its criteria.

However, only the exceedances of legally enforceable limits in Control Orders, Requirement and Direction, and Certificates of Approval could directly result in prosecutions under exisiting legislation. The guidelines in and of themselves are not directly legally enforceable.

The Ministry will continue to expect industrial dischargers to meet any numerical limits including guidelines until they are replaced by the technology based requirements of the Municipal-Industrial Strategy for Abatement (MISA) being phased in for major industrial sectors over the next few years.

4.1 Compliance With Guidelines or Requirements

The calculated actual monthly averages were compared to pollutant guidelines or requirements. Table 1 - Three Year Compliance Summary (pages 12 to 18) summarizes the compliance status for point source dischargers in this report. Also shown in Table 1 are the expected compliance dates.

Compliance status with monthly averages*

Year and Number of Sources Reported	Compliance	
	YES	NO
1989 - 170	77	93
1988 - 168	77	91
1987 - 157	62	95

* These figures include sources with site specific requirements specified under Control Orders; Certificates of Approval or guideline limits.

For companies discharging into the Great Lakes Basin only, the compliance status is as follows:

Year and Number of Sources Reported	Compliance	
	YES	NO
1989 - 138	66	72
1988 - 140	65	75
1987 - 132	56	76

* These figures include sources with site specific requirements specified under Control Orders; Certificates of Approval or guideline limits.

The 1989 results showed that, overall industrial dischargers met individual monthly limits 7125 times out of 8139 monitored, or 88% of the time. This compares with 1988 where dischargers met limits 6503 out of 7,388 monitored or 88% of the time. Individual monthly compliance for each company is shown on the data sheets in Appendix A.

The word "compliance" as used in this report does not indicate that no contraventions of the legislation and regulations have occurred, but rather that the data recorded in the report do not, in themselves, demonstrate that there have been contraventions.

Table 1
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE*			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Abitibi-Price Inc.	Iroquois Falls	A-1	Y	Y	Y	
Abitibi-Price Inc., Fort William Division	Thunder Bay	A-2	N	N	Y	
Abitibi-Price Inc., Provincial Papers Division	Thunder Bay	A-3	Y	Y	Y	
Abitibi-Price Inc., Thunder Bay Division	Thunder Bay	A-4	Y	N	N	1991
Agnico Eagle Mines Ltd., Penn Mill	Coleman twp	A-5	N	N	N	1991
Agnico Eagle Mines Ltd., Refinery	Coleman twp	A-6	N	N	N	1991
Algoma Steel	Sault Ste Marie	A-7	N	N	N	1991
American Barrick Resources	Kirkland Lake	A-9	-	-	Y	
American Standard, Div. of Wabco	Cambridge	A-10	N	N	N	1991
Atlas Steel Company	Welland	A-11	N	N	N	1991
Ault Foods Ltd.	Winchester	A-12	-	Y#	N#	1994
Beaver Wood Fibre Comapny	Thorold	A-13	N	Y	Y	
B F. Goodrich	Niagara Falls	A-14	N	Y	Y	
Boise-Cascade Canada Ltd.	Fort Frances	A-15	Y	Y	Y	
Boise-Cascade Canada Ltd.	Kenora	A-16	Y	Y	Y	
Bond Gold- Golden Patricia.	Sioux Lookout	A-17	-	-	Y	
BTL Speciality Resins	Belleville	A-18	N	N	N	1991
Cameco	Blind River	A-19	Y	Y	Y	
Cameco	Port Granby	A-20	N	N	N	1990
Cameco	Port Hope	A-21	Y	Y	Y	
Cameco	Welcome	A-22	Y	N	Y	
Campbell Soup Co. Ltd.	St. Marys	A-23	N	N	N	1992
Campbell's Wellington Mushroom Farm	Wellington	A-24	-	N	N	1990
Canadian Canners Ltd	St. Davids	A-25	Y	Y	Y	

* Based on Monthly Averages except where noted by #, are based on Annual Averages.

The Three Year compliance information is extracted from the annual Industrial Direct Discharges Reports. Dischargers with legal criteria such as Control Orders or Certificates of Approval may also have parameters assessed by provincial guidelines. Non-compliance as listed in Table 1 may be with legal criteria, guideline numbers or both.

For more detailed compliance assessment refer to the appropriate annual discharge report.

Table 1
THREE YEAR COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
CanadianOxy Chemicals	Fort Erie	A-26	N	N	N	1990
Canadian Pacific Forest Products Ltd.	Dryden	A-27	Y	Y	Y	
Canadian Pacific Forest Products Ltd.	Thunder Bay	A-28	Y	Y	Y	
Canamax Ltd Bell Creek Mine	Porcupine	A-29	-	N	N	1990
Casco Ltd	Cardinal	A-30	Y	N	N	1990
Celanese Canada Ltd.	Ernestown Twp.	A-31	N	Y	Y	
Champlain Industries Ltd.	Tara	A-32	Y	Y	Y	
Cornwall Chemicals Limited	Cornwall	A-33	-	N	N	1994
Courtaulds Fibres and Courtaulds Films	Cornwall	A-34	N	N	N	1994
Cyanamid Canada Inc.	Niagara Falls	A-35	Y	N	N	1990
Cyanamid Canada Inc Welland Plant	Welland	A-36	Y	N	Y	
Denison Mines Ltd.,	Elliot Lake	A-37	N	N	Y	
Denison Mines Ltd., Stanrock	Elliot Lake	A-38	N	Y	Y	
Denison Mines Ltd., Williams Lake	Elliot Lake	A-39	Y	Y	Y	
Detour Lake Mine	Timmins	A-40	N	N	N	1991
Dickenson Mine Ltd (A W White Mine)	Balmertown	A-41	N	N	N	1992
Dofasco Inc	Hamilton	A-42	Y	Y	N	1990
Dofasco Ltd - Adams Mine	Kirkland Lake	A-43	N	N	N	1991
Domtar Fine Papers	Cornwall	A-44	Y	Y	N	1992
Domtar Fine Papers	St. Catharines	A-45	N	N	N	1991
Domtar Packaging Ltd.	Red Rock	A-46	N	N	N	1991
Domtar Inc. Containerboard	Trenton	A-47	N	N	N	1990
Domtar Wood Preserving	Trenton	A-48	Y	N	N	1991
Dow Chemical Canada Ltd.	Sarnia	A-49	Y	Y	Y	
Dupont Canada Inc.	Corunna	A-50	N	Y	Y	
Dupont Canada Inc.	Kingston	A-51	Y	Y	Y	

Table 1
THREE YEAR COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Dupont Canada Inc.	Maitland	A-52	Y	Y	Y	
Eastmaque Gold Mines	Kirkland Lake	A-53	-	Y	N	1991
E. B. Eddy Forest Products Ltd.	Espanola	A-54	-	Y	Y	
E. B. Eddy Forest Products Ltd.	Ottawa	A-55	-	N	N	1993
Esso Chemicals Canada Ltd.	Sarnia	A-56	Y	Y	Y	
Esso Petroleum Canada Ltd.	Nanticoke	A-57	Y	Y	Y	
Esso Petroleum Canada Ltd.	Sarnia	A-58	Y	Y	Y	
Essroc Canada	Picton	A-59	-	N	N#	1992
Ethyl Canada Inc.	Corunna	A-60	Y	Y	Y	
Exolon	Thorold	A-61	Y	Y	Y	
Explosive Technologies International Inc.	North Bay	A-62	Y	Y	N	1990
Falconbridge Ltd., Nir Rd.	Falconbridge	A-63	N	N	N	1991
Falconbridge Ltd., Kidd Creek Mines (Met Site)	Timmins	A-64	N	N	N	1991
Falconbridge Ltd., Kidd Creek Mines (Mine Site)	Timmins	A-65	N	N	N	1991
Falconbridge Ltd., Lockerby Mine	Denison	A-66	N	N	Y	
Falconbridge Ltd., Moose Lake WWTP	Onaping Falls	A-67	N	N	N	1991
Falconbridge Ltd., Onaping Mine	Onaping Falls	A-68	N	N	N	1992
Fiberglas	Sarnia	A-69	Y	N	Y	
Fleet Manufacturing Company Ltd.	Fort Erie	A-70	N	Y	N	1990
Ford Motor Company Ltd.	Niagara Falls	A-71	Y	N	N	1990
Ford Motor Company Ltd.	St. Thomas	A-72	N	N	N	1991
Ford Motor Company Ltd.	Windsor	A-73	N	N	N	1994
Gay Lee Foods Co-op Ltd.	Teeswater	A-74	Y	N	N	1990
G. E. Plastics Ltd.	Cobourg	A-75	N	N	N	1990
General Chemical Canada Ltd.	Amherstberg	A-76	N	Y	N	1994
General Motors Company Ltd.	St. Catharines	A-77	N	N	N	1991
Giant Yellowknife Mines - Pamour	Timmins	A-78	N	N	Y	

TABLE 1
THREE YEAR COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Giant Yellow Knife Mines Ltd., - Schumacher	Timmins	A-79	N	N	N	1991
Glen Ayr Kitten Mills,	Village of Lanark	A-80	-	-	N	1992
Golden Shield Resources - Kerr Division	Virginiatown	A-81	N	N	N	1992
Haley Industries	Haley	A-82	-	N	N	1992
Hemlo Gold Mines	Marathon	A-83	Y	Y	Y	
I C I Canada Inc. (form CIL Ltd)	Cornwall	A-84	Y	N	N	1994
I C I Canada Inc (form CIL Ltd)	Courtright	A-85	Y	Y	Y	
Inco Ltd , Copper Cliff Nickel Refinery	Copper Cliff	A-86	N	Y	N	1990
Inco Ltd , Copper Cliff Creek Wastewater	Copper Cliff	A-87	N	N	N	1991
Inco Ltd., Crean Hill Mine	Copper Cliff	A-88	Y	N	N	1990
Inco Ltd., Garson Mine	Copper Cliff	A-89	N	N	N	1990
Inco Ltd., Levack Tailings Area	Copper Cliff	A-90	N	N	N	1990
Inco Ltd., Nolin Creek Wastewater	Copper Cliff	A-91	N	N	N	1991
Inco Metals Ltd	Port Colborne	A-92	N	Y	Y	
Inco Ltd	Shebandowan	A-93	-	-	Y	
International Minerals and Chemicals	Dunnville	A-94	N	Y	Y	
James River-Marathon, Ltd.	Marathon	A-95	Y	Y	Y	
J. M. Schneider Inc.	Ayr	A-96	N	Y	Y	
Kimberly-Clark of Canada Ltd.	Huntsville	A-97	Y	Y	Y	
Kimberly-Clark of Canada Ltd.	St. Catharines	A-98	N	N	Y	
Kimberly-Clark of Canada Ltd.	Terrace Bay	A-99	N	N	Y	
Kraft Foods Ltd	Ingleside	A-100	N	N	N	1995
Lac D'Amiante Quebec Ltd. - Aquarius Mine	Timmins	A-101	-	N	N	1991
Lac Minerals (Macassa Div.)	Kirkland Lake	A-102	N	Y	N	1990
LaFarge Canada Inc.	Bath	A-103	-	Y	Y	
Luzenac Inc. (form. Steetley Talc Ltd).	Foleyet	A-104	Y	N	N	1991
MacMillan Bloedel Ltd.	Sturgeon Falls	A-105	Y	Y	Y	
Malette Kraft Pulp and Power	Smooth Rock Falls	A-106	N	Y	Y	

TABLE 1
THREE YEAR COMPLIANCE SUMMARY ... continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Mattabi Mines Ltd.	Kenora District	A-107	N	N	N	1992
McBean Mine Ltd.	Dobie	A-108	Y	N	N	1991
Minnova Inc Winston Lake Project	Schreiber	A-109	-	N	N	1991
Mitsubishi Electronics Canada Inc.	Midland	A-110	N	Y	Y	
Nestle Enterprises Ltd.	Chesterville	A-111	N	N	N	1994
Nitrochem Inc	Maitland	A-112	Y	N	N	1993
Noranda Forest Inc., (formerly Fraser Inc.)	Thorold	A-113	N	N	N	1991
Noranda Inc., Lyon Lake Division	Ignace	A-114	N	Y	N	1991
Noranda Minerals Ltd. GECO DIV.	Manitouwadge	A-115	N	N	N	1993
Northern Wood Preservers Ltd.	Thunder Bay	A-116	Y	N	N	1993
Norton Company	Niagara Falls	A-117	Y	Y	Y	
Nova Petrochemicals Inc. (formerly Petrosar)	Corunna	A-118	Y	Y	Y	
Nova Petrochemicals Inc. (formerly Polysar)	Sarnia	A-119	Y	Y	Y	
Novacor Ltd.	Sarnia	A-120	N	N	N	1991
Ogilvie Mills Ltd.	Thunder Bay	A-121	N	N	N	1991
Omstead Foods Ltd.	Wheatley	A-122	N	N	N	1993
Ontario Hydro	Atikokan	A-123	-	Y	Y	
Ontario Hydro (Domestic STP)	Tiverton	A-124	Y	Y	Y	
Ontario Hydro, Bruce NPGS - A + B	Tiverton	A-125	Y	Y	Y	
Ontario Hydro, Bruce NPGS - Heavy Water	Tiverton	A-126	Y	Y	Y	
Ontario Hydro (Lakeview)	Toronto	A-127	Y	Y	N	1990
Ontario Hydro, Lambton TGS	Courtright	A-128	N	N	N	1994
Ontario Hydro (Lennox)	S. Fredericksburg	A-129	-	Y	N	1990
Ontario Hydro TGS (Ash lagoon)	Nanticoke	A-130	N	Y	Y	
Ontario Hydro TGS (Cooling Water)	Nanticoke	A-131	Y	Y	Y	
Ontario Hydro, (Pickering Stations A and B)	Pickering	A-132	Y	Y	Y	
Ontario Hydro	Thunder Bay	A-133	Y	Y	Y	
ORENCO (Ontario Rendering)	Dundas	A-134	-	N	N	1990

TABLE 1
THREE YEAR COMPLIANCE SUMMARY ...continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Petro Canada Products Inc. - Mississauga Plant.	Mississauga	A-135	N	N	N	1991
Petro Canada Products Inc. - Oakville Plant	Oakville	A-136	N	N	N	1991
Placer-Dome Mine (Campbell Red Lake Mine)	Balmertown	A-137	N	N	N	1992
Placer-Dome Inc. -Dona Lake Mine	Pickle Lake	A-138	-	-	Y	
Placer-Dome Mines	South Porcupine	A-139	N	Y	Y	
Quebec and Ontario Paper Company Ltd.	Thorold	A-140	N	Y	Y	
Rexwood Products Ltd.	New Liskeard	A-141	N	N	N	1991
Rio Algom Ltd , Panel Mill	Elliot Lake	A-142	Y	Y	N	1990
Rio Algom Ltd , Quirke Mill	Elliot Lake	A-143	N	N	N	1990
Rio Algom Ltd , Stanleigh Mill	Elliot Lake	A-144	Y	Y	Y	
Rohm and Haas	Morrisburg	A-145	-	Y	N	1990
Rothsay Ltd	Rothsay	A-146	N	Y	N	1991
Shell Canada Products Limited.	Corunna	A-147	Y	Y	Y	
Sherman Mine	Temagami	A-148	Y	Y	N	1990
Sifto Canada Inc.	Goderich	A-149	N	N	N	1994
Spruce Falls Power and Paper Ltd.	Kapuskasing	A-150	N	Y	Y	
Stanchem Ltd.	Cornwall	A-151	-	N	N	1994
Stanley Hardware Div. of Stanley	New Hamburg	A-152	N	N	N	1990
St. Marys Paper Inc.	Sault Ste Marie	A-153	Y	N	Y	
Stelco Inc	Hamilton	A-154	N	Y	Y	
Stelco Inc., Lake Erie Works	Nanticoke	A-155	N	N	Y	
Stelco Page Hersey Works	Welland	A-156	Y	Y	Y	
Stelco Welland Tube Works	Welland	A-157	N	N	N	1991
Stepan Canada Inc. (form. Domtar Chemicals G)	Longford Mills	A-158	Y	Y	Y	
Strathcona Paper Co. (Roman Corp. Div.)	Camden East TWP	A-159	Y	Y	N	1991
Suncor Inc., Sunoco Group	Sarnia	A-160	Y	Y	Y	
Teck-Corona Inc. (David Bell Mine)	Marathon	A-161	Y	Y	Y	
Tend - R - Fresh Div. of Maple leaf Mils	Dundas	A162	-	N	Y	

TABLE 1
THREE YEAR COMPLIANCE SUMMARY ...continued

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE			COMPLIANCE EXPECTED (YEAR)
			1987	1988	1989	
Tend-R-Fresh Div. of Maple Leaf Mills	Petersburg	A-163	N	N	N	1990
The Algoma Steel Corporation Ltd (Ore Div.)	Wawa	A-164	N	N	N	1992
The Canadian Salt Company	Windsor	A-165	N	Y	Y	
Trent Valley Paperboard Mills	Glen Miller	A-166	N	N	N	1992
Valeo Engine Cooling Ltd	Stratford	A-167	N	N	N	1992
Washington Mills Ltd.	Niagara Falls	A-168	N	N	Y	
Washington Mills (formerly Sohio)	Niagara Falls	A-169	N	Y	Y	
Wickes Manufacturing Co. Ltd.	Windsor	A-170	N	N	N	1990
Williams Operating Corp. (formerly LacMinerals)	Marathon	A-171	-	Y	Y	

5.0 ABATEMENT AND REMEDIAL ACTIONS

Remedial actions are often complex, involving problem definition, development of appropriate remedial measures, negotiation of abatement plans (including public consultation), design, approval, construction, and commissioning of works, and may extend over several years in some situations.

For non-compliance with limits, the Ministry's approach is to help develop an action plan which will enable the discharger to attain compliance.

Table 2 summarizes action items taken to address companies which were out of compliance in 1989.

Although there was no improvement in the over-all percentage compliance in the period from 1988 to 1989, 14 companies that were out of compliance in 1988 achieved compliance in 1989. At the same time however, 19 companies that were in compliance in 1988 were out of compliance in 1989.

There are a number of reasons why a company is out of compliance. These vary from isolated incidents (for example, breakdowns of equipment, or operating or laboratory errors which are either one-time occurrences or are corrected at the time), to basic deficiencies in treatment capability. The former can occur at any time. The latter, however, may result in ongoing non-compliance, since equipment change or modifications are usually required and these can take considerable time to fully commission.

Compliance action, which dischargers must undertake following Orders issued by the Ministry, can often take several years to complete. This is due to the time required for identification of the problem, analysis of remedial options, selection of an option, purchase of equipment, delivery, installation, and start-up. In some cases there may be a quick fix. Often however, a combination of process and equipment changes are required. For example, Stanley Hardware was out of compliance in 1987, 1988, and 1989. In 1986, the company action plan to reduce loadings to the treatment facility called for process modifications. These Phase I modifications were completed in April 1987, but failed to achieve the necessary level of performance (and, hence, the company was out of compliance) in 1987. A Control Order was issued in August 1988, and the company decided that a completely new treatment plant was required. Completion was anticipated by March 1989, however a delay in delivery of the equipment pushed completion to August. Once installation was finished and the equipment started up, compliance was achieved. Stanley Hardware was in compliance in 1990.

Many of the companies out of compliance in 1989 (Table 1), have long term remedial action programs in place, and are expected to achieve compliance in the next few years; specifically, it is expected that 23 dischargers will achieve compliance in 1990, 32 in 1991, 12 in 1992 and 11 in the years 1993 to 1995.

In conclusion, percentage compliance will not likely improve to the same degree each year; rather, there will be step changes related to the completion of remediation programs. Percent compliance will, however, be obvious on a longer term. In the short term, it is perhaps more appropriate to look at an individual company's record in attempting to achieve compliance.

On-going non-compliance without a remedial action program is unacceptable and will result in legal action against the offending discharger. The MISA program will address the issue of legally enforceable criteria for all companies, initially in the nine major industrial sectors, by setting effluent limits and firm compliance dates.

Table 2: Review of Action Taken to Address 1989 Non Compliance

Central Region

Cameco **Port Granby** Exceeded on a continuing basis, AECB operating licence effluent quality limit for arsenic in 1989. Page A-20	The parameter arsenic has been removed from the AECB license for this site. Port Granby is a low-level radioactive waste disposal site which stopped receiving waste in 1989. Site is scheduled for decommissioning when Federal Government task force identifies new site for waste. Following new site commissioning all waste at Cameco - Port Granby site will be removed. **In compliance now:** No
Cameco **Port Hope** Two exceedances of AECB Licence limits for NH_3-N. Page A-21	One exceedance in 1989 was due to documented spill. A documented explanation is not available for the second exceedance. One minor exceedance since May 1989 (in January 1990). Effluent has been in compliance since January 1990. **In compliance now:** Yes
G.E. Plastics **Cobourg** This company periodically exceeded their Certificate of Approval requirements for residue particulate, phosphorus and BOD in 1989. The guideline value for COD was exceeded twice. Page A-75	Changes to operation provided improved treatment in the last three quarters of 1989. Polishing filters were installed in mid 1990. Residue particulate, phosphorus and BOD have been in compliance since the installation of the new treatment process. **In compliance now:** Yes

Table 2: Review of Action Taken to Address 1989 Non Compliance
Central Region

Ontario Hydro - Lakeview TGS **Mississauga** Certificate of Approval temperature increase guidelines were exceeded four times in 1989. Page A-127	A control procedure is in place which engages additional cooling water pumps when effluent temperature increase approaches the quideline value. Ontario Hydro is working to ensure procedure is utilized effectively. **In compliance now:** **Yes**
Petro-Canada Products Inc. **Mississauga Plant** The guideline for suspended solids under the Ontario Effluent Quality Objectives for Petroleum Refineries was exceeded 8 times in 1989. Page A-135	Petro-Canada modified their sludge handling and disposal system in 1990. Suspended solids in treated effluent are now in compliance. Storm water run-off remains out of compliance for suspended solids. This issue will be addressed by the Ministry's Storm Water Management Program and/or the Storm Water Control component of the MISA Program. **In compliance now:** **No**
Petro-Canada Products Inc. **Oakville Plant** The quideline for suspended solids under the Ontario Effluent Quality Objectives for Petroleum Refineries was exceeded 11 times in 1989. Page A-136	The effluent treatment plant was modified in December, 1989. This modification included additional clarifiers, new dual media filters and aeration basins. Suspended solids in treated effluent have been in compliance since the installation of this system. Storm water run-off remains out of compliance for suspended solids. This issue will be addressed by the Ministry's Storm Water Management Program and/or the Storm Water Control component of the MISA Program. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Agnico Eagle Mines Ltd. (Penn Mill) **Coleman Twp.** Exceedances on an ongoing basis of arsenic and suspended solids contrary to Guidelines for Environmental Control in the Ontario Mineral Industry (G.E.C.O.M.I. 1981). Page A-5	Company ceased operations in August, 1989. Decommissioning project underway. Final report pending from the consultant. Compliance expected in 1991. **In compliance now:** **No**
Agnico Eagle Mines Ltd. (Refinery) **Coleman Twp.** Exceedance on an ongoing basis of arsenic and cyanide contrary to G.E.C.O.M.I. (1981). Page A-6	Company ceased operations in August, 1989. Decommissioning project underway. Final report pending from the consultant. Compliance expected in 1991. **In compliance now:** **No**
Algoma Steel **Sault Ste. Marie** Exceedances of suspended solids and solvent extractables contrary to Control Order. Page A-7	An Amending Control Order was issued on September 23, 1988. A Certificate of Approval for the construction of a dual media filtration and biological treatment plant was issued on January 23, 1989. It is expected that this will bring the effluent into compliance for suspended solids, solvent extractables, phenols, cyanide and ammonia. The construction was completed in 1990. The effluent is now in compliance for suspended solids and solvent extractables. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Northeastern Region

Canamax Ltd. Bell Creek Mine **Porcupine** One exceedance of cyanide contrary to Certificate of Approval. Page A-29	The company applied for and obtained approval for an improved 3 stage tailings management system along with increased mill recirculation; construction was completed in 1990. Cyanide results were in compliance in 1990. **In compliance now:** **Yes**
Detour Lake Mine **Timmins** One exceedance of copper contrary to Certificate of Approval. Page A-40	Certificate of Approval was issued in 1989 for expansion of the hydrogen peroxide plant; construction was completed in 1990. Effluent was not in compliance in summer 1990; also investigating methods of reducing ammonia. **In compliance now:** **Yes**
Dofasco Ltd. - Adams Mine **Kirkland Lake** Two exceedances of the iron and suspended solid contrary to G.E.C.O.M.I. (1981). Page A-43	Exceedances resulted from high flow conditions. The company has ceased its mine and milling operation on March 1, 1990. An inter-ministry committee is overseeing the site decommissioning. Company continues to monitor the tailings management system as required by the C of A. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Northeastern Region

Eastmaque Gold Mines Ltd. **Kirkland Lake** Exceedances of suspended solids contrary to Certificate of Approval.	Exceedances caused by short circuiting in the tailings management system. Action was taken to prevent this in 1989 and 1990.
Page A-53	**In compliance now:** **Yes**
Explosive Technologies International Inc. (E.T.I) (Nippissing Works) One exceedance of ammonia contrary to G.E.C.O.M.I. (1981).	Excavation of spilled materials in treatment pond caused resuspension of sediment and associated nitrogen compounds resulting in exceedance. Discharges met requirements in 1990.
Page A-62	**In compliance now:** **Yes**
Falconbridge Ltd. **Falconbridge, NIR Road** One exceedance of iron and nickel contrary to Certificate of Approval.	A detailed study of the wastewater treatment system is being conducted. The final report will be evaluated by MOE upon completion in 1991. Effluent was not in compliance for 1990. No exceedances in 1991. Remedial measures for tailings area are planned for 1991.
Page A-63	**In compliance now:** **Yes.**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Falconbridge Ltd. (Kidd Creek Mine Division) Metallurgical Site Timmins Two exceedances of zinc Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa 1977 (Federal) (MMLER & G). Page A-64	A computerized telemetry system was installed in 1990 to improve effluent quality control. An amendment to the discharge approval is pending and will address dilution ratios. **In compliance now:** **Yes**
Falconbridge Ltd., Kidd Creek Mine Division Mine Site Timmins One exceedance of the zinc and NH3-N, MMLER & G requirements. Ottawa 1977 (Federal) Page A-65	An increase in recirculation and a settling pond dredging program to increase retention was undertaken in 1990. Effluent in compliance in 1990. **In compliance now:** **Yes**
Falconbridge Ltd., Onaping Mine Moose Lake Wastewater Treatment System Exceedance of suspended solids and nickel contrary to Certificate of Approval. Page A-67	Treatment facilities were upgraded in 1990, to meet requirements of new C of A. Lime treatment system installed in 1990 has greatly reduced nickel loadings to Moose Creek. New C of A (1990) sets a concentration limit for nickel. There have been no exceedances for nickel or other parameters since the new C of A was issued. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Falconbridge Ltd., Onaping Falls **Onaping Mine** Exceedances of suspended solids and pH contrary to G.E.C.O.M.I. (1981). Page A-68	The cause of the toxicity of this effluent may be a combination of high pH/ammonia. A proposal to divert this waste stream to the Moose Lake Treatment system, where increased retention time and pH control equipment should mitigate the problem, was submitted in 1991 and is presently being evaluated. Discussions are ongoing with the company on this proposal. **In compliance now:** **No**
Giant Yellowknife Mines Ltd. Schumacher **Timmins** One exceedance of copper contrary to Certificate of Approval. Page A-79	Discharge was required to maintain safe dam levels due to high spring runoff. **In compliance now:** **Yes**
Golden Shield Resources - Kerr Division **Virginiatown** Exceedances on an ongoing basis for arsenic, cyanide, iron, nickel, zinc, total metals, copper, contrary to Certificate of Approval. Page A-81	Company shut down June 1989 and started up again in March 1990. Company has applied for Certificate of Approval to upgrade facilities in 1991. Out of compliance in 1990. Negotiations are currently underway with the new owners of the Mine/Mill complex with Approvals Branch regarding issuance of a new Certificate of Approval for the tailings system. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Inco Limited, Copper Cliff Nickel Refinery, Copper Cliff One exceedance of suspended solids and pH contrary to G.E.C.O.M.I. (1981). Page A-86	Inco Limited is presently investigating the feasibility of re-routing the effluent to the Copper Cliff tailings area. **In compliance now:** **Yes**
Inco Limited, Copper Cliff Creek Wastewater, Copper Cliff Exceedance of iron and nickel, contrary to Certificate of Approval. Page A-87	A C of A with conditions requiring a study to address the present bypassing situation and assess the need for increasing treatment capability has been issued to the Company. The Certificate remains under appeal. **In compliance now:** **No**
Inco Limited, Crean Hill Mine Exceedances of pH contrary to G.E.C.O.M.I. (1981). Page A-88	Tailings effluent is batch treated with lime. No changes to this system are planned. **In compliance now:** **Yes**
Inco Limited, Garson Mine, Copper Cliff Exceedances of nickel and suspended solids contrary to G.E.C.O.M.I. (1981). Page A-89	Dredging of the ponds was completed in 1989 in order to address the problem. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Northeastern Region

Inco Limited, Levack Tailings Area, Copper Cliff Exceedances of suspended solids and pH, contrary to G.E.C.O.M.I. (1981). Page A-90	An automatic lime addition system with continuous pH monitoring was installed in November 1989. **In compliance now:** **Yes**
Inco Limited, Nolin Creek Wastewater Treatment Plant, Copper Cliff Exceedances of copper, iron, and nickel, contrary to Certificate of Approval Page A-91	A Certificate of Approval, with conditions requiring a study to address the present bypassing situation and assess the need for increased treatment capability has been issued to the Company. The Certificate remains under appeal. **In compliance now:** **No**
Lac D'Amiante Du Quebec Ltee. **Aquarius Mine** **Porcupine** Exceedances of suspended solids and zinc, contrary to Certificate of Approval. Page A-101	Suspended solids discharge was regulated with modified internal tailings management plan to ensure compliance. Prior to milling operations restarting, a lift will be added to tailings area, thereby increasing the retention time. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Lac Minerals (Macassa Div.) **Kirkland Lake** Exceedances of cyanide, iron, copper and suspended solids contrary to Certificate of Approval and G.E.C.O.M.I. (Provincial) 1981. Page A-102	The treatment plant commenced operation on April 25, 1989. Effluent in compliance in 1990. **In compliance now:** **Yes**
Luzenac Inc. (previously reported as Steetly Talc Limited) **Foleyet** One exceedance of the suspended solids contrary to Certificate of Approval. Page A-104	Exceedance of suspended solids limit was attributed to poor sampling technique. **In compliance now:** **Yes**
McBean Mines Ltd. **Dobie** One exceedance of the iron, phenol and zinc contrary to G.E.C.O.M.I (Provincial) 1981. Page A-108	The operation has been shutdown since October 1987 and is in a care and maintenance mode. The company has been monitoring the final discharge at the Little Larder Lake outflow. Was not in compliance in 1990. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

Rexwood Products Ltd. **New Liskeard** Exceedances of suspended solids, BOD_5 and phenol, contrary to Objectives for the Control of Industrial Waste Dischargers in Ontario. Page A-141	Company had submitted in 1990 an application for a Certificate of Approval to stabilize new landfill site; diversion of storm water through existing site to avoid leachate generation will be a condition of approval. Compliance expected in 1991. **In compliance now:** **No**
Rio Algom Ltd.(Panel Mill) **Elliot Lake** One exceedance of pH, contrary to Atomic Energy Control Board. Page A-142	pH exceedance was minor; remedial action was not required. Mine/Mill closed September 1990. **In compliance now:** **Yes**
Rio Algom Ltd. (Quirke Mill) Elliot Lake Exceedance of suspended solids and iron, contrary to Atomic Energy Control Board. Page A-143	Fish kill (September 1989) resulted in prosecution by Atomic Energy Control Board. Mine/Mill closed September 1990. **In compliance now:** **Yes**
Sherman Mine **Temagami** Exceedance of aluminum, arsenic and copper, contrary to G.E.C.O.M.I. (1981). Page A-148	Company ceased operations in March 1990. An inter-ministerial committee has negotiated a decommissioning plan with the company. Implementation to commence in 1991. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northeastern Region

The Algoma Steel Corp. Ltd. (Algoma Ore Div.) Wawa Exceedances of suspended solids and pH contrary to G.E.C.O.M.I. (1981). Page A-164	The company has undertaken an upgrading program of the tailings management system which was completed in 1991. Changes to system being assessed. **In compliance now:** No

Table 2: Review of Action Taken to Address 1989 Non Compliance Northwestern Region

Abitibi-Price Inc. **Thunder Bay Division** **Thunder Bay** BOD_5 and Suspended Solids are legal control order limits whichwere exceeded on an ongoing basis. Page A-4	IEB submitted a crown brief in March 1990. Booms were installed in the lagoon and suspended solids were in compliance as of Feb. 1990. BOD_5 was in compliance for Feb. 1991. Operations reduced to 5 days/week because of market conditions. **In compliance now:** **Yes**
Dickenson Mines Ltd. **Arthur W. White Mine** **Balmertown** Exceeds certified requirements for arsenic, heavy metals, and occasionally, suspended solids. Page A-41	Effluent point is shared with Campbell Mine. Compliance for arsenic and metals in effluent is expected within one year of start-up of new Campbell pressure oxidation plant in July, 1991. Natural turbulence in the tertiary clearwater pond causes suspended solids exceedances. **In compliance now:** **No**
Domtar Packaging Ltd. **Red Rock** Exceeded on a periodic basis Control Order daily requirement for Suspended Solids. Page A-46	New washers are expected to be operational in 1991. The company will institute improvements to maintenance planning and procedures to avoid future exceedances. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance Northwestern Region

Mattabi Mines Ltd. **Sturgeon Lake area** **District of Kenora** Exceeds on occasion, guideline levels of zinc, iron, and pH. Page A-107	Exceedances occur when high run-off conditions exceed the hydraulic capacity of the treatment system. Plant operations are scheduled for suspension on May 22, 1991. **In compliance now:** **Yes**
Minnova Inc. Winston Lake Project **Schreiber** Periodic/isolated exceedances of a Certificate of Approval limit for oil and grease, phosphorous and zinc. Page A-109	The company reduced effluent discharge rate in November and December 1989 to minimize zinc loadings into the Whitesand River. The tailings dam height is to be increased in 1991 to provide longer retention time. **In compliance now:** **Yes**
Noranda Inc. **Lyon Lake Mine** **Sturgeon Lake area** **District of Kenora** Exceeds, on an ongoing basis, guideline levels for pH. Page # A-114	High pH's are necessary for precipitation of soluble zinc and removal from effluent. Mine operations were suspended in March, 1991. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Northwestern Region

Noranda Mines Ltd. GECO Div. **Manitouwadge** Exceeded on an ongoing basis the Mining Effluent Guideline for total ammonia.	**A new Certificate of Approval issued on July 31, 1989, requires the company to report semi-annually on their research into reducing ammonia levels.** **Noranda has hired a consultant to study ways to reduce ammonia in the mine effluent. The mine no longer uses ammonia in the milling process.**
Page # A-115	**In compliance now:** **No**
Northern Wood Preservers Ltd. **Thunder Bay** Periodic minor exceedances of the daily pentachlorophenol control order limits were experienced. 60 day rolling average limit for pentachlorophenol was not exceeded. Periodic exceedances of daily phenol control order limit. 30 day rolling average limit not exceeded.	The control order also requires "housekeeping measures" take place which would resolve the pentachlorophenol exceedances. However, these measures are "on hold" pending the resolution of a related control order appeal in the courts. The analytic methods employed by the company have been modified to meet MOE standard.
Page # A-116	**In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance

Northwestern Region

Ogilvie Mills **Thunder Bay** BOD_5 is an ongoing legal control exceedance. Suspended solids is an ongoing Ontario Guideline exceedance. Page # A-121	The secondary treatment facility order is not designed to meet the suspended solids objectives. The June, July, August and October BOD_5 exceedances were dealt with by a process change which reduced hydraulic flow by 25%. Production cutbacks has returned BOD_5 exceedances into compliances as of September 1990. Negotiations continue to direct the effluent to Thunder Bay's Water Pollution Control Plant. **In compliance now:** **Yes**
Place Dome Inc. **Campbell Mine** **Balmertown** Exceeds certified requirements for arsenic, heavy metals, and, occasionally, suspended solids. Page # A-137	Effluent discharge point is shared with Dickenson Mines Ltd.Arthur W. White Mine. Campbell Mine is scheduled to start up a new pressure oxidation plant in July, 1991. Compliance for arsenic and metals in effluent is expected within one year of start-up. Suspended solids exceedances results from natural turbulence in the tertiary clearwater pond, upstream of the discharge point. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Southeastern Region

AULT FOODS LTD. **Winchester** C of A requirements for suspended solids and ammonia nitrogen exceeded twice.	Discharges have been restricted to a spring discharge period, however, a capacity problem at the treatment works has been identified and solutions are under discussion. Occurrence reports have been initiated. The company has agreed to provide a report on alternative for long term solutions to discharge problems. This report is expected by the fall of 1991.
Page A-12	**In compliance now:** **No**
BTL SPECIALTY RESINS **Belleville** For two discharge points, MOE guidelines for phenols were exceeded a total of seven times.	Hexamine Plant shutdown in March, 1989. Formaldehyde Plant shutdown June 1989. BTL Specialty Resins ceased operations on March 31, 1990. Plant decommissioning continuing in 1991.
Page A-18	**In compliance now:** **Yes**
CAMPBELL'S WELLINGTON MUSHROOM FARM **Wellington** C of A requirements for phosphorus exceeded twice.	Equipment for addition of chemical (alum) for phosphorus removal required manual adjustment. Effluent quality compliance achieved last seven months of 1989.
Page A-24	**In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Southeastern Region

CASCO LTD. **Cardinal** Control order requirements exceeded sixteen times for BOD5 and three times for suspended solids, for all three outfalls. Page A-30	Plant has modified its process and industrial waste collection system. **In compliance now:** **Yes**
CORNWALL CHEMICALS LTD. **Cornwall** MOE guidelines for BOD exceeded twelve times. Page A-33	Discussions are ongoing with the company regarding zero discharge in conjunction with the St. Lawrence Remedial Action Plan (RAP). Further meetings will be held to develop an interim reduction proposal. Program will be established by Order for compliance in 1994. **In compliance now:** **No**
COURTAULDS FIBRES CANADA and COURTAULDS FILMS All BOD5 targets under Courtaulds Fibres expired Control Order and Courtaulds Films existing Control Order exceeded. Page A-34	BOD5 and zinc guidelines exceeded twelve times. Courtaulds Films Cornwall closed in September 1989. Requirements for Courtaulds Fibre's spill reduction actions will be established by a Control Order in 1991. Following service of this Order, the need for further reductions in the level of effluent parameters will be established. Compliance is anticipated in 1994. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance Southeastern Region

DOMTAR FINE PAPERS **Cornwall** Control Order requirements for BOD5 exceeded four times. Page A-44	Under the terms of the Control Order, the Ministry is studying a report submitted by the company on its suspended solids removal system. **In compliance now:** **No**
DOMTAR INC. **CONTAINERBOARD DIV.** **Trenton** Federal regulations exceeded four times for BOD5 and once for suspended solids. Page A-47	New whitewater storage tank and pulp stock washer constructed and put into operation during 1989 have resulted in effluent quality improvements over 1988. 1990 data shows annual compliance, however, BOD5 was exceeded in one month. **In compliance now:** **Yes**
DOMTAR WOOD PRESERVING **Trenton** C of A requirements for phenol and pentachlorophenol exceeded ten times at 'north' outfall. MOE guideline for phenol exceeded a total of seven times at 'south' and 'far north' outfalls. Page A-48	Control Order issued in March 1988 requiring company to install stormwater treatment and, stormwater management system and leachate collection system. Stormwater treatment system started operation in December 1988. Stormwater management system in operation in 1989. C of A amendment request for "far north" quality objectives' is under review. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance Southeastern Region

E.B. EDDY FOREST PRODUCTS **Ottawa** Control Order requirement for suspended solids exceeded twice. MOE guideline for BOD5 exceeded eleven times. Page A-55	Company has submitted a proposal for meeting requirements. The proposal is currently under review by Ministry staff. A new Control Order is under development to address BOD5 and suspended solids and is to be issued in fall of 1991 to achieve compliance in 1993. **In compliance now:** No
ESSROC CANADA INC. **(previously reported as Lake Ontario Cement)** **Picton** MOE guidelines for suspended solids exceeded seven times; annual average also in exceedance. Page A-59	The company is assessing feasibility of utilizing a closed loop, totally recirculated wastewater stream (no off-site discharge), using the South Quarry as a reservoir and settling/treatment area. Remediation of manholes initiated to exclude extraneous flows. Sedimentation facilities to be reviewed for upgrading by late 1991. **In compliance now:** No
GLEN AYR KITTEN MILLS **Lanark** MOE guidelines exceeded eleven times for BOD5, six times for suspended solids. Page A-80	Company has completed several process changes in 1990 that were ineffective. An order will be issued in the fall of 1991 to ensure compliance in 1992. **In compliance now:** No

Table 2: Review of Action Taken to Address 1989 Non Compliance Southeastern Region

HALEY INDUSTRIES **Haley** Numerous exceedances of C of A requirements for metals, BOD5, nitrate, fluoride, phenols, oil & grease, suspended solids sulphite and sulphate. Page A-82	Consultants hired to design new wastewater treatment plant to meet C of A requirements. New treatment plant expected to be operational in 1992. Order stipulating compliance requirements for 1992 is being prepared. **In compliance now:** **No**
ICI (CANADA) INC. **(previously reported as CIL Ltd.)** MOE guideline for suspended solids exceeded once. Page A-84	Discussions are ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence Remedial Action Plan. **In compliance now:** **No**
KRAFT FOODS LTD. **Ingleside** MOE guidelines for BOD5 exceeded 9 times, for phosphorus exceeded 11 times, and for suspended solids exceeded 10 times. Page A-100	The company has entered into an agreement with the Township of Osnabruck to discharge to the sanitary sewer upon completion of municipal system upgrading. It is anticipalted that the WPCP will be accepting wastewater from Kraft by 1995. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Southeastern Region

NESTLE ENTERPRISES LTD. **Chesterville** C of A requirements for BOD5 exceeded eight times, for suspended solids exceeded six times, and for phosphorus exceeded three times. Page A-111	Implementation of treatment optimization has proceeded and further improvements are sought. An Order to be in place by fall of 1991 requiring compliance in 1994. **In compliance now:** No
NITROCHEM INC. **Maitland** Order requirements for pH exceeded ten times, for nitrogen exceeded twelve times, and for total nitrates exceeded once. Page A-112	Based on MISA monitoring data, Requirement and Direction to be reviewed. New Control Order to be issued in late 1991 to reflect current situation in terms of treatment facilities and effluent quality requirements will require compliance in 1993. **In compliance now:** No
ONTARIO HYDRO - LENNOX G.S. **South Fredericksburg (Bath)** There were a total of nine exceedances of MOE guidelines for suspended solids, at four outfalls. Page A-129	The C of A for treatment works was amended to include technically achievable effluent quality objectives. Possible modifications to improve suspended solids removal efficiency under high flow conditions will be assessed. **In compliance now:** Yes

Table 2: Review of Action Taken to Address 1989 Non Compliance Southeastern Region

ROHM AND HAAS CANADA LTD. **Morrisburg** MOE guideline for total phosphorus exceeded once. Page A-145	The Ministry has met with Rohm and Haas to explore the single exceedance of phosphorus. No continuing problem determined. **In compliance now:** **Yes**
STANCHEM LTD. **Cornwall** MOE guidelines for BOD5 exceeded ten times, for suspended solids exceeded twelve times, and for total phosphorus exceeded twice. Page A-151	Discussions have been ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence Remedial Action Plan (RAP). Further meetings will be held to develop an interim reduction proposal. An Order is being developed. Compliance is anticipated by 1994. **In compliance now:** No
STRATHCONA PAPER COMPANY **Camden East Twp.** BOD5 C of A limit exceeded once. Page A-159	Additional aeration installed in June 1990 has resulted in reduction of BODs loading. **In compliance now:** **Yes**
TRENT VALLEY PAPERBOARD **Mills - Trenton** C of A requirement for RSP exceeded twelve times. Page A-166	Company submission demonstrated mill using BAT. Receiving water studies have not identified an impact. A public meeting will be held in mid 1991 to consider abatement options. Resolution expected in 1992. **In compliance now:** No

Table 2: Review of Action Taken to Address 1989 Non Compliance Southwestern Region

Campbell Soup Company Ltd. **St. Marys (Blanchard Township)** Exceeded guidelines for BOD5 8 times and suspended solids 7 times. Page A-23	Several operational changes effected late in 1989 have in 1990 resulted in significant improvements in effluent quality. It is anticipated that further operational process and equipment changes in 1991 will result in an effluent fully in compliance by 1992. **In compliance now:** No
Ford Motor Company **St. Thomas** Exceeded guidelines for Phenols 3 times (twice marginally) and suspended solids once (marginally) as the result of a process upset. Page A-72	The company is now decommissioning their sludge lagoons in advance of constructing a new state-of-the-art treatment facility, expected to be completed during 1991. **In compliance now:** No
Ford Motor Company of Canada Ltd. **Windsor** Exceedance, on an ongoing basis of the phenol guideline and exceedance of the suspended solids requirement on four occasions. Page A-73	Pollution abatement equipment to control suspended solids was installed in 1988. Optimization of equipment and operations should result in compliance for suspended solids. A phenol reduction program was instituted in 1988. A 70% reduction has been achieved; however the phenol guideline is still not being achieved. Reduction program continuing.The remaining sources of phenol are to be identified and evaluated for reduction. **In compliance now:** No

Table 2: Review of Action Taken to Address 1989 Non Compliance Southwestern Region

Gay Lee Foods Co-op Ltd. **Teeswater** Exceeded RSP (suspended solids) guideline on four occasions. Page A-74	Ministry staff met with Company officials during 1989 to review in detail the operating records for periods of exceedance. The Company implemented operational improvements in late 1989. **In compliance now:** **Yes**
General Chemical Canada Ltd. **Amherstburg** Seven exceedances of suspended solids guideline. Page A-76	Currently involved in setting discharge limits under the MISA regulations. Suspended solids reduction possibilities are being reviewed. **In compliance now:** **No.**
Novacor Ltd. **Sarnia** Two exceedances of the suspended solids guideline Page A-120	New control equipment resulted in annual compliance during 1989. A partial pond liner was installed in 1990. Full compliance was observed in the latter half of 1990 and is expected to continue for the full year of 1991. **In compliance now:** **Yes**
Omstead Foods Ltd. **Wheatley** Four exceedances of BOD5 guideline and two of ammonium guideline. Page A-122	The treatment works will be upgraded once a Certificate of Approvals is issued. The BOD5 exceedances are due to poor winter efficiency of the present treatment system. **In compliance now:** **No**

Table 2: Review of Action Taken to Address 1989 Non Compliance
Southwestern Region

Ontario Hydro, **Lambton Generating Station,** **Courtright** One exceedance of the monthly temperature rise guideline. Page A-128	The exceedance was less than a one degree rise in temperature and is considered minor. The plant continues to reduce the frequency of exceedances by improved process control. **In compliance now:** No
Sifto Canada Ltd. **Goderich** Exceeded RSP (suspended solids guideline on 8 occasions and for the year. Page A-149	During 1988, considerable improvements were made involving identification of sources, redirection of flows and improved housekeeping. Improvements made over the years have resulted in a 66% reduction of suspended solids between 1984 and the present and a 36% reduction between 1988 and the present. The possibilities for further reductions are being reviewed. **In compliance now:** No
Valeo Engine Cooling Ltd. **Stratford** Exceeded effluent guidelines for phenols once and zinc three times. Page A-167	Ministry staff met with company officials to determine what measures must be taken to reduce effluent parameter concentrations to levels which would meet current effluent discharge criteria. In March, 1990 the company submitted an action plan, which included an in-house investigative at-source reduction programme. Operational modifications are being put in place and will continue throughout 1991 compliance is expected in 1992. **In compliance now:** No

Table 2: Review of Action Taken to Address 1989 Non Compliance
Southwestern Region

Wickes Manufacturing Co. Ltd. **Windsor** Exceeded the nickel guideline on 4 occasions and the suspended solids guideline on 8 occasions. Page A-170	The Company provided pretreatment and during 1990, commenced discharging its effluent to the municipal water pollution control facility for further treatment. The plant permanently ceased operations in 1990 and is now closed. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance West Central Region

American Standard, Div. of **Wabco Standard Inc.** **Cambridge** Exceeded Certificate of Approval limit for suspended solids three times. Page A-10	Company submitted an application to upgrade its wastewater treatment plant to end suspended solids exceedances caused by a new parts washer. A new Certificate of Approval was issued Dec. 1990. Installation of new equipment to be completed by the end of July 1991. Compliance expected after commissioning. **In compliance now:** **No**
Atlas Specialty Steels **Welland** Cadmium and suspended solids guidelines exceeded for nine months. Chromium and oil and grease guidelines exceedances were intermittent. Page A-11	Company's abatement program to recirculate both process and cooling wastewater commenced in 1989. Total recirculation of cooling water except for summer period was completed in 1990. Any wastewater discharge due to thermal restriction is treated in North Plant Wastewater Treatment system. **In compliance now:** **Yes**
Canadian-Oxy Chemicals Ltd. **Fort Erie** Phenol exceeded MOE Guidelines for six months. Page A-26	The company submitted an abatement program including wastewater recirculation, stormwater treatment, and process modification to achieve compliance by July 1989. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
West Central Region

Cyanamid Canada Inc. **Niagara Falls (Niagara Plant)** Suspended solids exceeded MOE guidelines during one month. Page A-35	The one monthly exceedence was due to stormwater run off entering the surface effluent discharge ditch. The suspended solids are not from plant processes. The company was in compliance in 1990 and no further action is required. **In compliance now:** **Yes**
Dofasco **Hamilton** One Suspended Solids exceedance during MISA flow meter installation (October). RSP exceedence in December due to change in reporting format from net loadings to gross loadings. Page A-42	None required **In compliance now:** **Yes**
Domtar Fine Papers **St. Catharines** BOD_5, exceeded Pulp and Paper Committee guidelines continuously. Page A-45	Past programs to treat and recirculate effluent met with limited success. The company diverted high strength BOD_5 wastewater to the sanitary sewer system in 1990. Remaining effluent is treated in primary treatment plant. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance

West Central Region

Fleet Industries Ltd. **Fort Erie** Suspended solids guidelines exceeded during one month. Page A-70	The one monthly exceedance was attributed to storm water run off entering the final effluent ditch. The company was in compliance in 1990 and no further action is required. **In compliance now:** **Yes**
Ford Motor Company **Niagara Falls** Suspended solids guidelines exceeded during one month. Page A-71	The exceedence was an isolated event. The exceedence could not be attributed to a process upset. **In compliance now:** **Yes**
General Motors **Company Ltd.** **St. Catharines** Phenol and Suspended solids exceeded MOE guidelines continuously. Page A-77	In 1988 a secondary treatment system consisting of Rotating Biological Contactor was installed. The mechanical equipment failed and required redesign and installation in 1990. Company experimented with raw material substitution and successfully reduced phenol in the effluent in 1990. These changes will continue to be implemented in 1991. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
West Central Region

Noranda Forest Inc. **Thorold** Suspended solids continuously exceeded the Pulp and Paper Committee Guideline. Page A-113	A new certificate of approval for an upgraded wastewater treatment facility issued in 1991. The plant is expected to comply with the guideline which was made a C of A requirement for 1991. **In compliance now:** **No**
Orenco (Ontario Rendering) **Dundas** Suspended Solids were above the guideline on two occasions due to runoff/ erosion from fields. Page A-134	Sample point changed to ensure results reflect plant effluent. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance
West Central Region

Rothsay, Rendering Div. of **Maple Leaf Mills Ltd.** **Rothsay** One minor exceedance of suspended solids and one exceedance of H_2S at detection limit, Certificate of Approval requirement. Page A-146	Discharge is on a batch basis from treated lagoon and quality is consistently within criteria except for minor isolated incidents. In compliance in 1990 except for two minor pH exceedances during the first discharge period (Jan. 1990) and in compliance during the second discharge period (Nov.- Dec. 1990). The H_2S concentration is reported at the analytical detection limit, however, this caused an exceedance since the Certificate of Approval limit is below the detection limit. Ministry staff are reviewing the Certificate of Approval H_2S requirements and analytical technique. **In compliance now:** **Yes**
Stanley Hardware Division **of Stanley Canada Inc.** **New Hamburg** Exceeded, on an ongoing basis, control order requirement for flow, cyanide, copper, nickel, zinc and suspended solids. Page A-152	A new wastewater treatment plant was completed in August 1989. Since then, with the exception of one suspended solids exceedance, the Company has met the Certificate of Approval requirements. The suspended solids exceedance was due to a plant malfunction. There were no 1990 exceedences. **In compliance now:** **Yes**

Table 2: Review of Action Taken to Address 1989 Non Compliance West Central Region

Stelpipe **Stelco Welland Tubes Works** A minor exceedance of a suspended solids guideline during one month. Page A-157	Company received approval for the construction of a new wastewater treatment system which should be completed in early 1991. **In compliance now:** **No**
Tend-R-Fresh Div. Maple Leaf Mills Poultry Products Inc., Petersburg Exceeded on an ongoing basis Certificate of Approval limits for ammonium-nitrogen and once for solvent extractables. Page A-163	Interim measures achieved compliance for all parameters except ammonium-nitrogen. No further action is required since plant closed July 1989. **In compliance now:** **Yes**

5.1 Enforcement Actions

The Ministry of the Environment, Investigations and Enforcement Branch, was formed in 1985. Regional staff refer incidents, etc., to this Branch for investigation and possible follow-up with prosecution. Note that exceedance of a monthly average requirement does not necessarily mean that charges are laid.

During 1989, a total of nine Certificate of Approval and/or Control Order violations were forwarded to the Investigations and Enforcement Branch for further investigations. As a result of the investigations, there was one prosecution and conviction, charges are still pending in another case, one investigation is still active, no charges were laid in five of the cases and charges have been withdrawn from one company.

Table 3A summarizes these enforcement activities*. Table 3B gives updates of sources reported in the 1988 discharge report..

In addition to these formal enforcement actions, other informal enforcement activities also took place during 1989. These include putting companies on notice and having companies take precautionary measures to prevent further exceedence of their limits. During this same period, the Investigations and Enforcement Branch was also actively involved in numerous investigations and prosecutions related to abnormal discharges such as spills to surface waters and illegal emissions to the atmosphere, in regard to the companies listed.

* NOTE: These statistics relate only to the companies listed in the 1989 Industrial Discharges Report. In some cases the actual offences leading to the activity occurred prior to 1989.

TABLE 3A
ENFORCEMENT ACTIVITIES RELATING TO INDUSTRIAL DISCHARGES IN 1989

COMPANY	OFFENCE DATE AND DESCRIPTION	DISPOSITION
1. Abitibi-Price Thunder Bay Mill	C.O. violation. Exceeded total suspended soilds.	Brief submitted Mar.28, 1990, awaiting charges.
2. Algoma Steel Corp.	April, May, June '89, C.O. Violation. TSS 30-day avge.	Case concluded, no charges laid.
3. Ault Foods Ltd.	June '89 C. of A. violation. BOD exceeded	Prosecuted charges withdrawn
4. Ault Foods Ltd.	C. of A. violation	Prosecuted and convicted Nov.'90
5. Detour Lake Mines	June '89 C.of A. violation. Exceeded Copper limit.	Case concluded, no charges laid.
6. Domtar Wood Preserving	1989-1990 C. of A. violation	Investigation are under way.
7. Ford Motor Co. Windsor Casting Plant	Jan. to Feb. '89 C. of A. violation; TSS exceeded.	Case concluded, no charges laid.
8. Rio Algom Ltd. Panel Mill	C.of A. violaton. Exceeded pH limit	Case concluded, no charges laid.
9. Stepan Canada Inc. (form. Domtar Chem.)	C.O. violation	Case concluded, no charges laid.

TABLE 3B
DECEMBER 1989, REPORT
UPDATE OF OUTSTANDING 1988 WATER RELATED OFFENCES FOR WHICH CHARGES WERE LAID

	COMPANY	OFFENCE DATE AND DESCRIPTION	DISPOSITION
1.	Courtaulds Canada (Cornwall)	April 17/88. Discharge of oleic acid to St. Lawrence River.	Charges dismissed Jan. 91 because of charter argument based on Askov Decision.
2.	Domtar Inc. (Trenton)	September 3/87. Discharge of a form of creosote into Trent River.	Convicted on one count and fined $ 15,000
3.	Dow Chemical Canada Inc. (Sarnia)	July 30/86. Discharged ethylbenzene into St. Clair River	Company was Convicted and fined $ 10,000
4.	James River Marathon Ltd. Marathon Northwest Region	March 1, 2, 1987 Discharge of 5,000 gallons of turpentine into Jellicoe Cove E.P.A. S.13(1)a O.W.R.A. S.16(1)	On November 24, 1989 Company was found not guilty. No appeal by legal services
5.	Petrosar (Sarnia)	Sept. 23/87. Discharge of brine into a drain creek and the St. Clair River.	Convicted and fined $18,000
6.	Polysar Ltd. (Sarnia)	Aug 31/87. Impairment of water quality due to acetonitrile spill into the St. Clair River.	All charges dismissed. Judge ruled company was duly diligent.
		Mar. 27/87. Permitted discharge of a toxic solvent into the Cole Drain which empties into the St. Clair River.	Decision due May 15, 1991
		Sept. 23/87. Permitted discharge of a toxic solvent into the Cole Drain which empties into the St. Clair River.	Company was convicted and fined $105,.000. Upon appeal fine was dropped to $ 35,000.
		Sept. 9/87. Discharge of styrene into the St. Clair River.	Decision due May 15, 1991
7.	Waferboard Corporation Ltd. o/a Malette Kraft Pulp & Paper (Smooth Rock Falls)	March 18/87. Failed to comply with terms of Control Order. Allowed effluent to be discharged into river.	Dismissed on appeal on July 4,1990

6.0 MISA MONITORING AND REGULATORY PROGRESS

The MISA (Municipal-Industrial Strategy for Abatement) program was officially announced by the Ontario Ministry of the Environment in the White Paper of June 1986. The goal of the program is to reduce all municipal and industrial waste loadings and to virtually eliminate the discharge of persistent toxic contaminants to Ontario's waterways. The MISA program consists of two stages: data collection (legally required monitoring and reporting); and, limits setting (which is the primary use of the MISA data).

Legislative authority for MISA is provided by Section 136 of the Environmental Protection Act. Under this authority, the Ministry has imposed Effluent Monitoring Regulations, and will impose Effluent Limits Regulations, on direct industrial dischargers in Ontario.

The monitoring regulations require dischargers to monitor their point source discharges according to fixed schedules. This will provide comprehensive data on effluent quality, particularly for toxic contaminants. By year end 1989, sectoral Effluent Monitoring Regulations had been promulgated for eight of nine industrial sectors. Preparations have started for the next stage: development of the Effluent Limits Regulations.

Information generated by the Effluent Monitoring Regulations is being entered into a data base on contaminants discharged across Ontario. These data are being used in the development of effluent limits.

The MISA Effluent Monitoring and Effluent Limits Regulations will first apply to the nine major industrial sectors; these sectors are:

- **PETROLEUM REFINING SECTOR**
  Seven petroleum refineries that manufacture a variety of refined petroleum products and blend lubricating oils and grease from crude oil.
- **ORGANIC CHEMICALS MANUFACTURING**
  Twenty-six companies that manufacture organic chemicals, plastics, and synthetic fibres from petrochemical feedstocks.
- **PULP AND PAPER**
  Twenty-seven mills that make pulp, paper, paperboard, corrugated medium and boxboard from logs, chips, and used paper (newspaper, ledger paper, containers, and the like).
- **METAL MINING AND REFINING**
  Industrial activities that consist of mining and concentrating ores, (69 major active mines), and smelting and refining non-ferrous metals (nickel, copper, lead, zinc, gold, silver, salt, uranium).
- **IRON AND STEEL**
  Seven plants that make iron and steel from ore, scrap, and coal.
- **ELECTRIC POWER GENERATION**
  Seventy-eight establishments that generate electricity from either fuel oil, coal, natural gas, uranium, or water.
- **INORGANIC CHEMICALS**
  Twenty-nine factories that make inorganic chemicals (such as sulphuric acid, caustic, hydrochloric acid, fertilizers, abrasives, and carbon black) from sulphur, salt, etc.
- **METAL CASTING**
  Ten factories that make castings from iron, steel, alumium, magnesium , and other metals.
- **INDUSTRIAL MINERALS**
  One hundred and fourteen sites that are primarily engaged in mining and processing non-metallic minerals and structural materials, including asbestos, gypsum, graphite, mica, limestone, talc, vermiculite, nepheline syenite, calcite, quartzite, dolomite,

sand, and gravel. Subsectors are: cement, graphite, gypsum, magnesium, chemical lime, sand and gravel, talc, and quarries.

The companies falling within the above-listed industrial sectors account for approximately ninety-five percent of Ontario's direct industrial dischargers.

Effluent Monitoring Regulations were developed for each sector listed above. The monitoring regulations became law following a public review period. In 1990, development of Effluent Limits Regulations for each sector was started.

Both the Effluent Monitoring and Effluent Limits Regulations were and are being developed with discharger and public participation. Consultation with industries is maintained through Joint Technical Committees (JTC), made up of representatives from the Ministry, Environment Canada, and the affected dischargers. These technical committees, one per sector, provide an opportunity for the dischargers to have technical input to the regulation development process.

Review of each draft regulation is initially provided by the MISA Advisory Committee (MAC). Independent technical and environmental experts sit on this committee. The MAC provides the Minister of the Environment with advice and comments on the regulations being developed, and on other MISA matters. Each draft regulation is subject to a formal public review period prior to promulgation.

For each industrial sector there is a Development Document for the Effluent Monitoring Regulation for the sector. The Development Document provides background information on the sector, the technical rationale behind the regulatory requirements, a list of companies in the sector, all discharge points identified for each discharger (continuous or intermittent process wastewaters, cooling water, storm water, combinations), and schedules for each discharge, which identify the pollutants for analysis and the frequency of sampling. Monitoring data are submitted in two formats -- electronic media (diskette) and hard copy.

The sampling frequency and list of parameters for analysis is specific to the type of discharge. Process wastewaters have the longest list of pollutants and greatest frequency of sampling and analysis (from daily, thrice weekly, weekly, monthly, quarterly, annually). Stormwater has the shortest list and lowest frequency. Past experience and knowledge have been incorporated into these schedules.

Other major Ministry projects supporting MISA are in place. A list of priority pollutants for Ontario, titled the Effluent Monitoring Priority Pollutants List (EMPPL), has been developed and was updated in 1989. EMPPL includes a listing mechanism which recognizes and assigns significance to the environmental effects of a specific pollutant. Also, major studies to assess various socio-economic impacts relating to the implementation of the MISA monitoring regulations for each industrial sector (Economic and Financial Profiles) have been completed.

Pilot site studies are also in progress at six sites across the province, covering both Great Lakes and inland waterways. The purpose of the MISA Pilot Site Project is two-fold: (1) to develop site-specific effluent requirements for hazardous and conventional pollutants for designated discharges based on receiving water impact assessments; and (2) to develop and document a variety of receiving water assessment techniques and procedures which can be applied to other discharger/receiving-water situations in the Province. The Pilot sites are: Kaministiquia River at Thunder Bay, St. Mary's River at Sault Ste. Marie, St. Clair River at Sarnia, Grand River at Waterloo, Lake Ontario at Toronto, and St. Lawrence River at Cornwall. To date, a final report for the Pilot Site study at St. Clair River at Sarnia has been approved for publication, and a draft report for the Pilot Site study at Kaministiquia River at Thunder Bay is under review. Draft reports for the remaining Pilot

Site studies will be completed pending receipt of reports on specific components of the studies.

To support the implementation of MISA, work is underway to revise the water management policies contained in the Ministry of the Environment's Blue Book - the policy manual for water quantity and quality management in Ontario.

MOE Laboratory Involvement in MISA Program

Laboratory Services Branch (LSB) staff provided input to development of the MISA Effluent Monitoring Regulations and, in particular, the General Effluent Monitoring Regulation, which sets out the rules dischargers must follow to collect samples from their effluent streams, and to analyze them for compounds listed on the EMPPL. The analytical requirements set out general principles for sample preparation and for instrumental measurement methods which must be met, and leave the laboratories some discretion regarding the actual methodologies to be followed. A comprehensive quality assurance/quality control (QA/QC) program is included which requires that a minimum number of bench QC samples be analyzed with each batch of samples as an indication of laboratory performance. A field QC component is used to monitor any sampling or field effects.

LSB instituted an inspection program to ensure that all laboratories doing MISA analyses comply with the regulatory requirements. Industries are informed of the results of these inspections and the outstanding requirements, which their laboratories must meet. By the end of September 1990 most laboratories, doing MISA analysis for the four sectors ending their monitoring periods in 1990, had been inspected and all have complied with any outstanding regulatory requirements arising from the inspections.

Another MISA activity involving LSB staff has been initial report reviews and verification inspections, whereby all initial reports and re-submissions were reviewed for compliance with the regulations.

6.1 Petroleum Refining Sector

Description

The petroleum refining sector in Ontario consists of seven plants, six of which are conventional petroleum refineries with total (1988) plant sales of 24 billion litres, and one which is a petroleum-based producer of primary petrochemicals with a (1988) capacity of 1.3 billion kilograms.

Petroleum refinery effluents consist mainly of process wastewater (process effluent) and non-contact cooling water (once through cooling water) which can be potentially contaminated if leakage occurs.

All the petroleum refineries in Ontario have effluent treatment systems that consist of the following: two primary stages (oil/water separators) and air flotation, some form of intermediate equalization, secondary treatment (biological treatment), and biomass removal.

The Ontario Ministry of the Environment enforces Federal Regulations and applies both Federal and Provincial guidelines for the petroleum industry. According to these guidelines, petroleum refineries report five parameters which are considered to be representative of their effluents: phenolics, ammonia-nitrogen, total suspended solids, oil and grease, and acute toxicity to fish (federal 24 hour test; provincial 96 hour test).

Status

In Ontario, MISA monitoring of petroleum refinery effluents started on December 1, 1988, and was completed on November 30, 1989. During the year of monitoring, over 80,000 data points were collected and an extensive data base on refinery effluents was established. The data base contains information on all direct discharges from the refineries, in total 42 sampling locations (also known as control points) for the seven refineries. The following types of effluents were covered by the MISA Effluent Monitoring Regulation:

- process
- intake
- once-through cooling water
- landfarm leachate
- storm water
- emergency overflow

The Ontario Ministry of Environment issued two preliminary reports based on data gathered during the monitoring period:

1) December 1989 Report ISBN 0-7729-6375-4 Preliminary Report for the First Six Months of Monitoring in the Petroleum Refinery Sector (December 1, 1988 to May 31, 1989)

2) July 1990 Report ISBN 0-7729-7331-8 Second Report on the Monitoring Data for the Petroleum Refining Sector

These reports are available from the Ministry of the Environment Public Information Office.

The findings of the MISA monitoring program have instigated some projects for improvement of effluent quality. During the monitoring year the following changes were made:

- NOVA Petrochemicals Inc. (Corunna) stopped using chromium/zinc-based additives and began adding phosphorus-based additives to their cooling water. This resulted in reduced concentrations of chromium and zinc, while the concentrations of phosphorus remained below the allowable limit.

- Petro Canada Inc., Lake Ontario Refinery - Oakville Plant eliminated theuse of chromium/zinc as a corrosion inhibitor in August 1990. he refinery also started a self-initiated program to improve their wastewater treatment plant in 1987 (the plan was approved by the Ministry in 1988). Construction activities continued throughout the MISA monitoring period. The modifications were officially commissioned in January 1990. The improved treatment system included installation of a new clarifier, sand filter, and settling pond.

- Shell Canada - Sarnia, commissioned and installed an additional clarifier in December 1988 in order to improve settling of suspended solids.

6.1.1 Loading Trends

For the year 1989, all the loadings from the petroleum refineries will be on a common reporting basis. In previous reports, loadings were reported either as gross (3 refineries) or net (4 refineries). In this Report only gross loadings from the MISA Monitoring regulatory data base are used. This reporting change accounts for most of the increase in the 1989 loadings shown in Figure 1. More information on effluent quality and intake water contaminants can be found in the two preliminary MISA reports for this Sector (the first report covers December 1, 1988 to May 31, 1989 and the second covers June 1, 1989 to November 30,1989.)

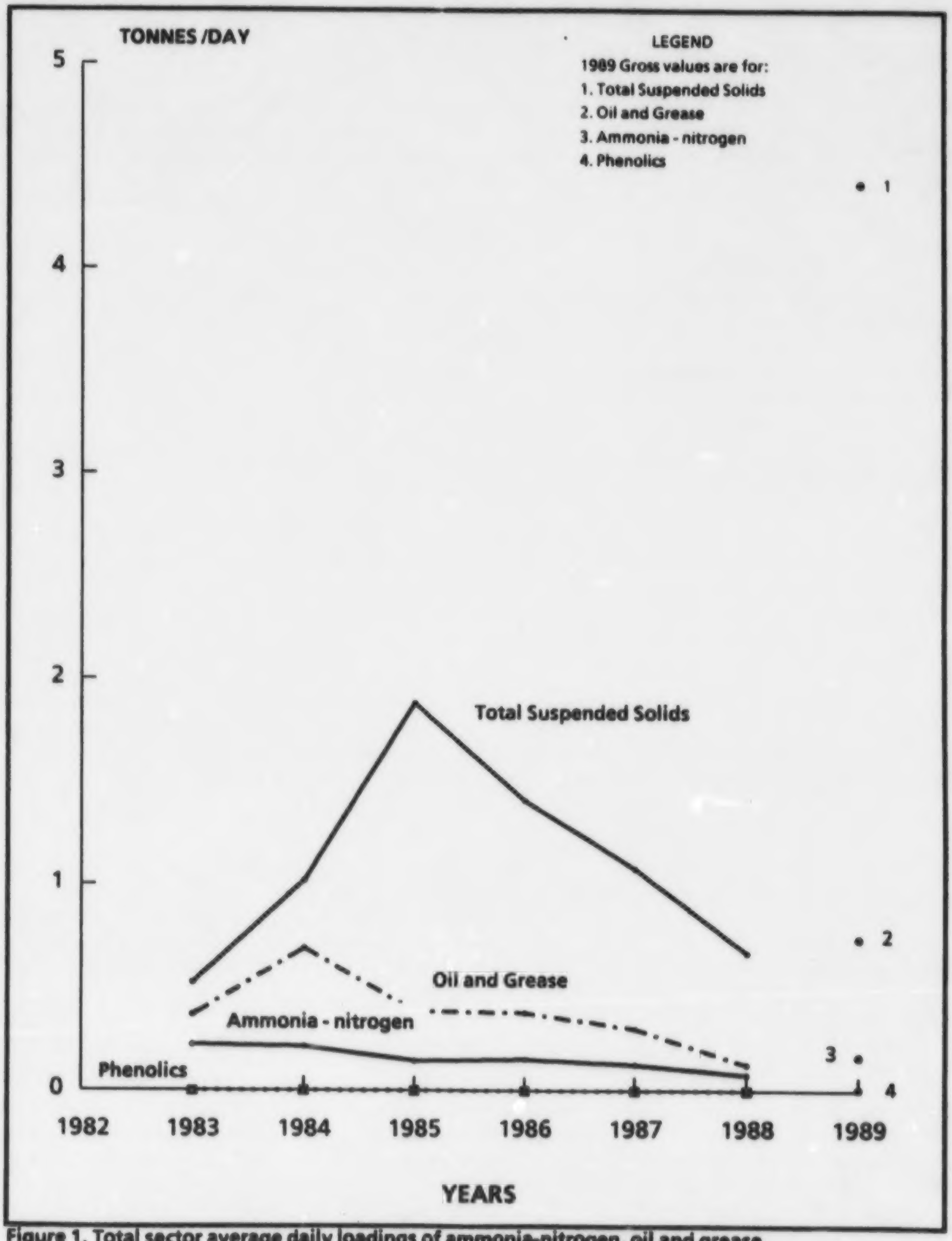

Figure 1. Total sector average daily loadings of ammonia-nitrogen, oil and grease, phenolics and total suspended solids discharged by Petroleum Refineries from 1983 - 1988. 1989 data points represent MISA GROSS data only. Previous years reflect summary loads of NET and GROSS data.

6.2 Organic Chemicals Manufacturing (OCM) Sector

Description

The OCM Sector currently includes twenty-six plants. At the start of the one year regulatory monitoring period (October 1, 1989), 22 plants were included under 0. Reg. 209/89 and its amendment, 0. Reg. 532/89. Under subsequent amendments five plants were added as of February 1, 1990 (0. Reg. 45/90), and one plant was deleted as of March, 1990. Each plant site was required to carry out 12 months of intensive monitoring which is now followed by a reduced level of monitoring for three daily parameters during the period between the expiration of the Effluent Monitoring Regulation and the start of the Effluent Limits Regulation. Approximately 125 waste streams were monitored under the regulation. The one year monitoring period was completed at the end of September 1990.

Two plants were shut down during the 1989 - 1990 period: Courtaulds Films in Cornwall and BTL Specialty Resins in Belleville.

Of the plants currently in the sector, ten are located in the Sarnia area, five in the Cornwall area, six along Lake Ontario and the St. Lawrence River, two in the Niagara area, two in Central Ontario, and one on the Ottawa River.

The plants manufacture a wide range of products, including fibres (nylon, rayon, polyester, spandex), plastics (PVC, ABS, polyethylene, polystyrene), synthetic rubbers, phenol-formaldehyde resins, chlorinated hydrocarbons, polyethylene films, and synthetic detergent bases.

Status

As a direct result of the monitoring regulation, plants in the sector have upgraded their effluent sampling and flow measurement capabilities. The plants have also begun a process of rationalizing and diverting their previously direct discharges to on-site treatment facilities in order to reduce their loadings to the environment.

The discharge data reported in this document for this sector includes monthly average loadings calculated from MISA data for the months of October to December 1989. All of the monitoring data, daily, thrice-weekly, weekly, and monthly effluent sampling, collected under the regulation is currently being analyzed.

The information obtained under the Effluent Monitoring Regulation will be used to set discharge limits under the Effluent Limits Regulation for the plants in the sector.

6.3 Pulp and Paper Industry Sector

Description

There are twenty-seven (27) pulp and paper mills located in the Province of Ontario that discharge effluent directly to surface watercourses. Sixteen mills are located in Northern Ontario, five in Eastern Ontario, and the remaining six in South-Central Ontario. The MISA Effluent Monitoring Regulation for the Pulp and Paper Sector was promulgated on July 21, 1989. Effluent monitoring started on January 1, 1990.

For the purposes of the Effluent Monitoring Regulation the 27 pulp and paper mills have been divided into four sub-sectors: sulphate (kraft), sulphite-mechanical, corrugating, and deinking-board-fine papers-tissue. There are nine mills in the sulphate (kraft) sub-sector, eight mills in the sulphite-mechanical sub-sector, and two mills in the corrugating sub-sector; the remaining mills are in the deinking-board-fine papers-tissue sub-sector. Pulp and paper mills were placed into a particular sub-sector depending on the manufacturing processes used at the mill.

Status

The one year monitoring period was completed on December 31, 1990.

To meet the accuracy requirements of the Effluent Monitoring Regulations, over a third of the mills installed new flow measuring systems. Another third recalibrated their flow measurement systems. The remaining third found the existing systems met the accuracy requirements.

The mills that use chlorine as a bleaching agent are required to monitor for dioxins/furans and Adsorbable Organic Halogens (AOX). The Ministry issued Control Orders to kraft mills to reduce the discharge of AOX compounds to 2.5 kilograms per tonne of bleached kraft pulp by year end 1991.

A preliminary report based on data gathered during the Effluent Monitoring Regulation period has been issued:

> February Report ISBN 0-7729-8064-0
> Preliminary Report on the First Six Months of Process Effluent Monitoring in the MISA Pulp and Paper Sector (January 1, 1990 to June 30, 1990)

A study on the eighteen (18) non-kraft mills in Ontario that discharge effluent directly to surface watercourses was commissioned by the Ministry in June, 1989. The study will identify any acute and persistent toxicants in the effluents from these mills and will examine the current status of toxicity at these mills. The study on non-kraft mill effluents in Ontario will be completed in 1991.

6.3.1 Loading Trends

The quality of mill effluents is currently measured by three parameters, total suspended solids (TSS), 5 day biological oxygen demand (BOD5), and acute toxicity. Figure 2 depicts these data graphically and includes additional historical data dating back to 1983.

The total mass loading of total suspended solids (TSS) from all Ontario mills increased by 980 kg/day (to 80,800) for 1989, compared to 1988 (79,780 kg/day).

Total suspended solids loadings to the Great Lakes Basin decreased by 940 kg/day between 1989 (51,000) and 1988 (51,940).

The total mass loading of BOD5 from all Ontario mills for 1989 (319,300 kg/day) decreased by 400 kg/day when compared to the 1988 loading (319,700 kg/day). The 1989 BOD5 loading decreased by 3,900 kg/day (202,900 kilograms in 1989 compared to 206,800 kilograms in 1988) for the sources discharging to the Great Lakes Basin.

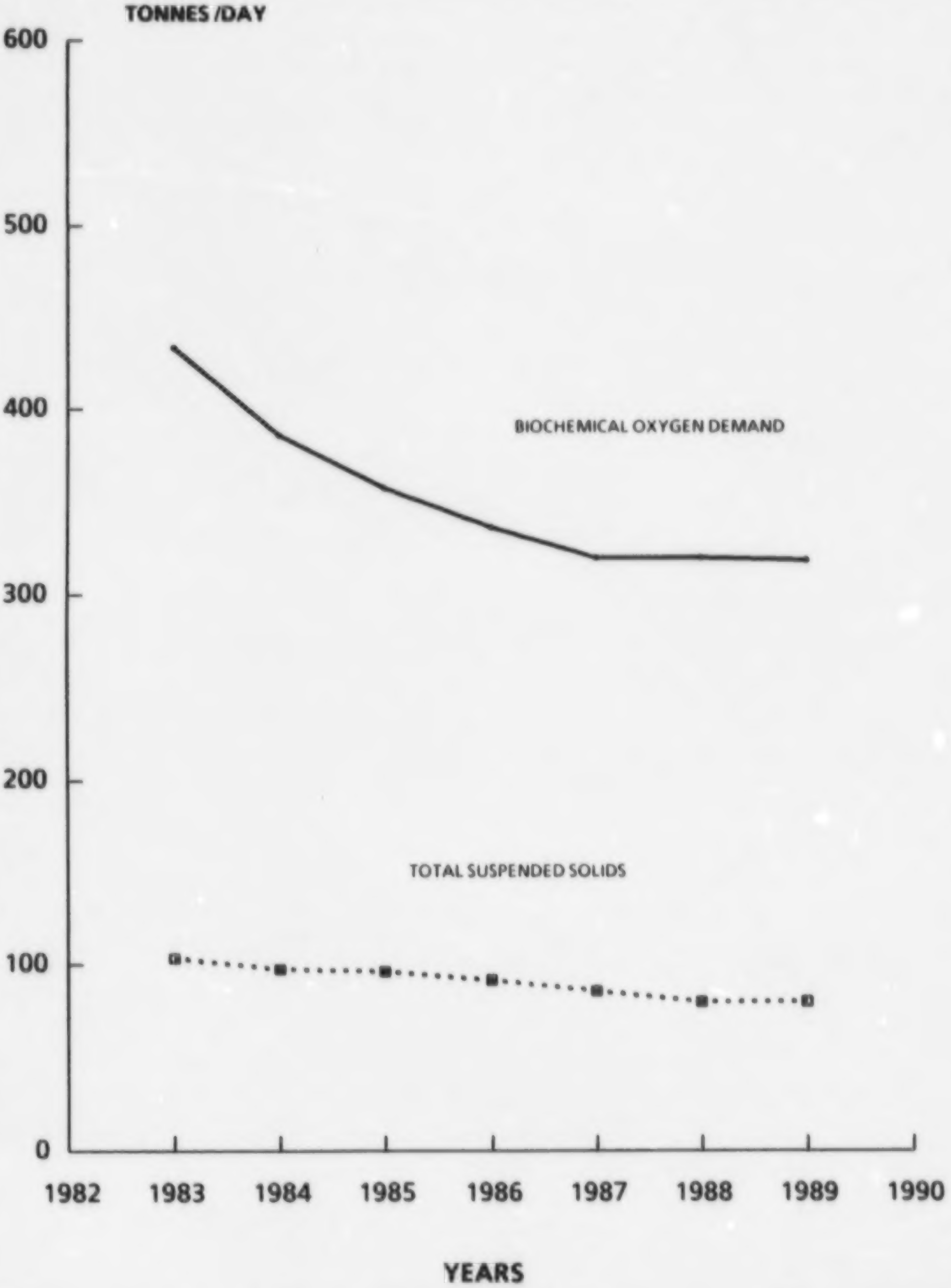

Figure 2. Total sector average daily loadings of biochemical oxygen demand and total suspended solids discharged by Pulp and Paper mills from 1983 to 1989. Graph reflects summary loads of NET and GROSS data for TSS and gross data for BOD

6.4 Metal Mining and Refining Sector

Description

The Metal Mining and Refining Sector consists of several thousand mining properties in Ontario. Most of these properties are small, abandoned, and in remote areas. The sector does however contain over one hundred abandoned properties where environmental problems have been identified and does contain approximately sixty active mining sites. Some of these active mining sites are the largest of their type in the world.

For the purposes of the Mining Effluent Monitoring Regulation, which was developed in 1989 and is known as Ontario Regulation 491/89 as amended by Ontario Regulation 44/90, the sector was divided into the following sub-sectors: gold, silver, iron, salt, uranium; and, grouped together in one sub-sector, copper, lead, zinc, and nickel. The mines covered by the Effluent Monitoring Regulation account for more than 95% of current production in Ontario.

Before the regulation was promulgated in the fall of 1989, a number of samples for detailed analysis were taken from selected representative mines within the sector. The resulting data indicated that all conventional parameters that were expected to be present in the effluents were detected at the sampling points and in the concentrations that were expected. With regard to complex organic compounds, these dischargers do not manufacture these compounds, although a few plants use organic compounds during the processing of ore. Very few organic compounds were detected, although the detection level was set at 1 part per billion. Only seven organic compounds appeared in the data set at levels above 10 parts per billion.

The Mining Effluent Monitoring Regulation describes four effluent categories: minewater effluent; process effluent; stormwater effluent; and, smelter/refinery effluent.

Status

Monitoring under the regulation began on February 1, 1990 and ended on January 31, 1991. Flow measurement devices were installed at many mining operations to permit the accurate measurement of flow and the calculation of loadings.

Under this regulation, dischargers in most sub-sectors were required to monitor approximately 10 parameters (such as pH and suspended solids) on a three times per week basis, another 10 parameters (such as ammonia and phenolics) on a monthly basis, and well over one hundred parameters (usually complex organics) on a quarterly basis. In addition, all quarterly samples were subject to toxicity tests using both rainbow trout and *Daphnia magna*. The vast majority of effluent discharges for this sector are from tailings ponds which have extremely long retention times.

6.5 Iron and Steel Sector

Description

The Iron and Steel Sector in Ontario consists of seven plants, four of which are integrated iron and steel mills, and three which use electric arc furnaces only (mini-mills).

For the purpose of the Effluent Monitoring Regulation, the Iron and Steel sector has been divided into integrated iron and steel mills, and specialty steel producers and mini-mills. Integrated mills include coke-making and iron-making processes which generate most of the industry's priority pollutants. Specialty steel producers and mini-mills generally melt scrap metal to produce low carbon steel and specialty steel products.

Status

The Iron and Steel Effluent Monitoring Regulation started on November 1, 1989. The basic principle of the monitoring regulation is the building block concept, where coke, iron, steel, and finishing plants monitor their individual effluents. These process sub-categories, or blocks, can be put together to form an integrated plan. The integrated mills monitored for 153 parameters, whereas the specialty steel and mini-mills monitored for 140 parameters. All plants monitored their effluents for chlorinated dibenzo-p-dioxins and dibenzo furans, and for polychlorinated biphenyls twice during the 12 month monitoring period. Monitoring was completed in October, 1990.

Data collected during November and December 1989 are included in this report with the loading calculations using gross, or unadjusted, values.

Final discharges to waterways were monitored daily for four substances, three times a week for 12 contaminants, weekly for eight to 12 substances, monthly for 86 (three smaller operations) or 117 (four large mills) pollutants, and quarterly for 140 (small mills) or 152 (large mills) pollutants. Other waste streams such as cooling water, waste disposal site effluent, and storage site effluent had different monitoring schedules. As well, provision was made for additional sampling to be carried out for a period of up to six months following the completion of the initial one year regulatory monitoring period. Biological monitoring provided an additional screening mechanism that complements chemical analysis of toxic substances. Monthly toxicity tests using rainbow trout and *D. magna* were conducted.

Each plant sampled its own discharges and had them tested to standards specified in the regulation, with random Ministry audits to verify that the results were accurate and representative.

6.5.1 Loading Trends

Loading trends are represented in this Report for the Iron and Steel Sector by six parameters common to sector dischargers: ammonia, phenolics, total suspended solids, iron, cyanide, and oil and grease. Figure 3 depicts these data graphically and includes additional historical data dating back to 1983. Loadings for Algoma Steel are "total loadings". For the other sites "net loadings" (the total loading minus the intake water loading) are presented.

Total ammonia discharges in 1989 were lower than 1988 discharges by 1,194 kg/day (3,526 kilograms in 1989 compared to 4,720 kilograms in 1988). Total discharges of phenolics for 1989 were 30.1 kilograms per day lower than they were in 1988, 137.8 kilograms compared to 167.9 kilograms, respectively. For suspended solids, the 1989 total was 3,491 kg/day higher than the 1988 total (18,888 kilograms compared to 15,397 kilograms).

Cyanide loadings declined to 84.3 kg/day in 1989, down from the 1988 level of 124.34 kg/day. All sources showed a decrease in cyanide levels. The total discharges of oil and grease (solvent extractables) increased marginally for 1989 (by 6.3 kilograms per day). The comparable results are 2,574.7 kilograms for 1988 and 2,581 kilograms for 1989.

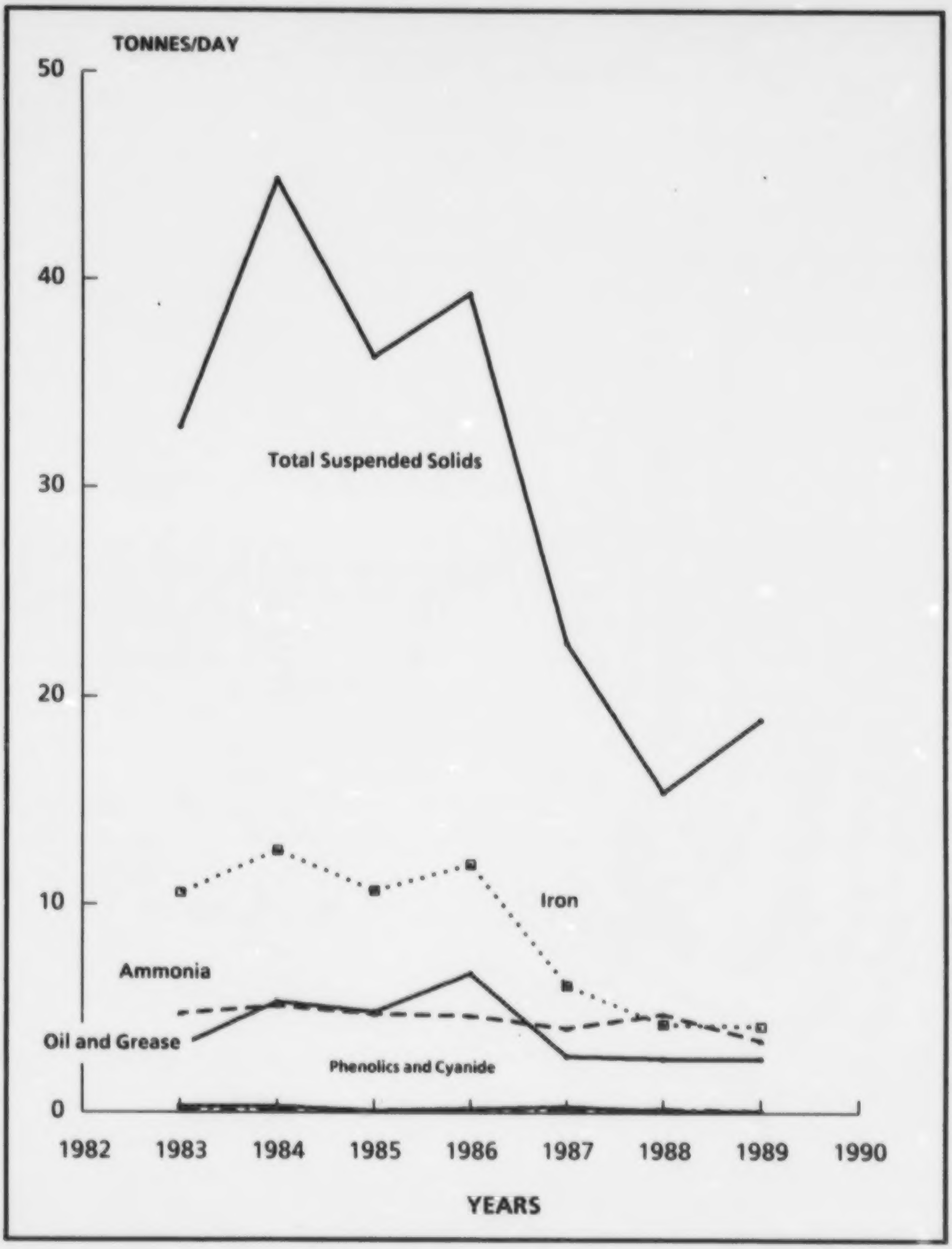

Figure 3. Total sector average daily loadings of total suspended solids, phenolics, cyanide, oil and grease, iron and ammonia discharged by Iron and Steel mills from 1983 - 1989 (October).

6.6 Electric Power Generation Sector

Description

Ontario Hydro (as defined in the electric power generation sector) produces electricity at 78 sites in the province. At six of these sites electric power is produced by burning fossil fuels (oil, coal, gas). At four nuclear complexes power is produced by fission of uranium. Lastly, electric power is generated at 68 hydraulic stations, of which six have been selected as typical representatives for this group. Two fossil fuel plants are mothballed and one nuclear complex at Darlington near Bowmanville is under construction. Unit 2 of the Darlington NGS was completed, tested, and commissioned in 1990.

Atomic Energy of Canada Ltd. (AECL) owns the Douglas Point Waste Management Facility (WMF) (at the shut down Douglas Point NGS site), Chalk River Laboratories, Chalk River and the Nuclear Power Demonstration WFM at Rolphton (also a shut down nuclear reactor location).

The Bruce Heavy Water Plant and Sewage Treatment (Processing) Plants at Darlington (Construction) and Bruce Nuclear Power Development Services are included in this sector.

The parallel generating (non-utility generator) stations which sell electricity to Ontario Hydro have been excluded from this sector. These are primarily hydraulic stations and a few energy from waste projects which may be addressed within their respective sectors at a later date.

Status

After completion of public review of the draft regulation, the final EPGS Effluent Monitoring Regulation, O.Reg. 726/89, was promulgated on December 27, 1989. Effluent monitoring commenced on June 1, 1990, and extends for a twelve month period ending May 31, 1991.

Biological monitoring is required on a monthly basis for process effluents and on a quarterly basis for once-through cooling waters, using rainbow trout and Daphnia magna.

Accurate flow monitoring of process streams and flow estimation of other streams is also required to establish total loadings.

6.7 Inorganic Chemical Sector

Description

The Inorganic Chemical Sector is diverse in terms of process complexity, plant size, and products manufactured. It is comprised of 29 plants which produce nitrogen fertilizers, aluminum oxide (abrasives), chlorine gas, explosives, fibreglass, carbon black, and industrial gases.

Status

The monitoring period, as detailed in the Effluent Monitoring Regulation for the Inorganic Chemicals Sector (O.Reg. 395/89, as amended by O.Reg 649/89, 269/90, and 418/90) for the original 22 plants extended from December 1, 1989 to November 30, 1990.

An additional 7 industrial gas plants commenced monitoring on February 1, 1990, and continued until January 31, 1991.

In an effort to minimize monitoring costs, a number of plants modified their effluent streams by either re-routing them to treatment systems or combining them with other effluent streams. Consequently, amendments to the regulation were necessary during the monitoring period.

The breakdown in number of effluent stream types across the sector was as follows:

- process	5
- combined	34
- batch	4
- storm	30
- once-through cooling water	12
- emergency overflow	3

After the one year monitoring period expired, the Effluent Monitoring Regulation required all sector plants to continue measuring the MISA daily parameters and effluent flowrates for all process and combined effluent streams. These monitoring requirements remain in effect until the Effluent Limits Regulation is promulgated for the Sector.

6.8 Metal Casting Sector

Description

Foundries and die casting plants melt metal (e.g. iron, steel, aluminum, copper, nickel, or magnesium) and cast it into specific products, such as engine blocks, electrical parts, and pipes. The Metal Casting Sector consists of 10 companies, including large companies such as Ford and General Motors and a number of smaller companies. These companies discharge waste streams (process, combined, cooling, and stormwater effluent streams) directly into the environment. Typically, the process effluent stream contains metals, suspended solids, organics (mainly from resin binders used to make sand moulds), and oil and grease.

Status

The Effluent Monitoring Regulation for Ontario's metal casting manufacturers became law on November 30, 1989. Monitoring by this sector began on May 1, 1990 for ten plants (3 die casters and 7 foundries) for up to 162 contaminants, and will continue for one year. Originally, there were 13 direct dischargers in this sector. However, by the time monitoring started, the number had dropped to ten. The three plants which were no longer considered to be part of the direct discharging Metal Casting Sector were either recycling and reusing their water, or discharging into municipal sanitary sewers.

The ten companies covered by the Effluent Monitoring Regulation for the Metal Casting Sector are:

Acustar	Etobicoke
Canada Alloy	Kitchener
Canada Pipe	Hamilton
Kubota	Orillia
Ford Motor	Windsor
Franklin	Strathroy

General Motors	St. Catharines
Haley	Haley Station
Richmond	Cornwall
Western	Wingham

Each plant samples its own discharges and has them analyzed in accordance with the regulation. Random Ministry audits verify that the results are accurate and representative. The regulation stipulates quality control and quality assurance procedures for collecting, preserving, storing and analyzing samples.

Within this sector there are 15 streams: 3 process, 4 combined, 2 cooling water with the potential for contamination, 5 cooling only, and 1 storm water effluent stream.

Process effluent streams are monitored daily for 4 pollutants; three times a week for 19 pollutants; weekly for 20 pollutants and monthly for up to 108 pollutants.

Combined effluent streams are monitored daily, three times a week and weekly for 18 pollutants, monthly for up to 108 pollutants and quarterly for 138 compounds.

Cooling water with the potential for contamination effluent streams are monitored monthly for 22 pollutants.

Cooling water effluent streams are monitored monthly for as many as 23 pollutants.

Storm water effluent streams are monitored monthly for 15 parameters.

PCBs are monitored in the process, combined and cooling water effluent streams, on a monthly basis, if they were detected in the effluent during pre-regulation monitoring, or on a quarterly basis, if any are stored on site.

Dioxin analyses are conducted by three plants on a semi-annual basis.

Characterization and open characterization analyses are done quarterly on all process and combined effluent streams to determine the presence of toxic contaminats that are not listed on the Environmental Monitoring Priority Pollutants List. Characterization analyses only are done on all cooling water with the potential for contamination effluent streams.

Toxicity testing, using Rainbow Trout and *Daphnia magna*, is required for all effluent streams. Monthly toxicity testing will be done on selected process and combined effluent streams. Other combined effluent streams and cooling water with the potential for contamination effluent streams have quarterly toxicity testing requirements. Semi-annual toxicity testing is performed on all cooling water effluent streams.

Flow monitoring is required to provide consistency in establishing total loadings of contaminants.

6.9 Industrial Minerals Sector

Description & status

The Draft Effluent Monitoring Regulation for the Industrial Minerals Sector was released for public comment in October 1989. The Monitoring Regulation for this sector was promulgated August 1990.

Because of the many differences in products, effluent contaminants and treatment processes, plants in this sector were divided into nine categories. The categories and the number of plants are as follows:

-	Cement	6
-	Chemical Lime	6
-	Clay and Shale	5
-	Graphite	1
-	Gypsum	3
-	Magnesium	1
-	Quarries	85
-	Sand & Gravel	5
-	Talc	2

Of the 85 Quarries, 20 were selected as representative plants for monitoring. The representative sites have close similarities to the non - monitoring sites and should provide representative effluent information for all quarry sites.

7.0 SELF MONITORING REQUIREMENTS AND AUDIT PROCESS

All of the plants included in this report monitor their own discharges. Prior to the MISA monitoring regulations the monitoring requirement and schedules were expressed in Control Orders, Certificates of Approval or specific regulations such as the Federal Chloro-Alkali Regulation. Additionally, most plants provided monitoring results on a voluntary basis on a schedule determined in discussions with Ministry staff. To ensure that the self-monitoring data are accurate, the Ministry of the Environment audited companies to ensure samples were collected according to MISA protocols and took audit samples to verify data . The program requirements are fulfilled in one of the following formats:

1. Twenty-four hour composite samples are split between the source and the Ministry, and results are compared.

2. Grab-samples are split between the source and the Ministry, and the samples compared.

3. Samples are taken by the Ministry, and the results are compared to the industry's reported results for an adjacent period.

4. In some cases, where conditions warranted, intensive cross-industry audits were done.

5. For those dischargers subject to the MISA regulations, intensive on-site inspections were conducted as part of the implementation of those Regulations for that sector.

The Ministry of the Environment obtained duplicate samples in conjunction with this program. The resulting data are being used to develop the requirements of the limits phase of MISA.

The audit programs and the MISA discussions have revealed, in some cases, substantial differences in sampling and analytical methods that make direct comparisons of results in previous annual reports invalid. Those problems continue to be addressed on a case-by-case basis.

It is planned that the Ministry will continue the audit program in the existing format while MISA is being implemented. Each monitoring regulation under MISA has a component that addresses quality control and quality assurance as well as requiring consistent analytical methods and sampling techniques. The Ministry has increased its regional operations and laboratory staff in order to carry out more extensive audits for MISA.

8.0 DATA MANAGEMENT SYSTEMS

A variety of data management systems are used to coalate data for the preparation of the annual discharge reports. These systems are:

- the Industrial Monitoring Information System (IMIS)
- the MISA Data Entry System (MIDES)
- the Sample Information System (SIS)
- the Toxicity Data Entry System (TOXDATA)

IMIS, a data storage and reporting program was used to gather most of the data in this report. Discharge data from the industrial plants are submitted on paper copy to the Ministry of the Environment District offices. Ministry staff in turn, transfer the data to IMIS via a personnel computer (PC) linked to the central mainframe computer in Toronto. Information can be retrieved by the Regional Offices as well as the Head Office. The data tables, as reported in Appendix A were created from the IMIS data banks.

This system was sufficient for data processing where typically a company would monitor from two to a dozen parameters (pollutants) at only a few sample locations. Under the MISA Monitoring Regulations, companies may monitor from a few parameters to more than one hundred for more than thirty sample locations. The number of parameters and sample locations varies from company to company and from sector to sector.

Because of the large amount of data that was and is still being generated under the monitoring regulations, it was necessary under the MISA Monitoring Regulation that industries submit MISA data in a specified Electronic Transfer File (ETF) format acceptable to the Ministry.

The MIDES program was designed by the Ministry of the Environment, as a PC-based system, for use by the discharger to report analytical data. This system allows dischargers under the monitoring regulations to enter MISA data and submit this data in an ETF format on computer diskettes to the Regional Ministry offices. MIDES also prepares and prints hard copy reports of the data for submission to the Ministry.

The regional Ministry offices have enhanced versions of MIDES that allow preparation of ETF files for transmission to the corporate SIS system.

The Sample Information System (SIS) is a database storage system for many Ministry programs and is the final destination for all MISA data obtained under the Monitoring Regulations.

Dischargers are also required to determine the relative acute toxicity of their discharge (see Section 9.0). This entails testing the effect of the sample effluent on either trout or *Daphnia magna*, and measuring the degree of lethality.

The TOXDATA system was designed to allow the discharger to enter this toxicity data and generate the Electronic Transfer file and printed reports required by the Ministry. Computer diskettes containing TOXDATA files are sent to the Aquatic Biology Section - Toxicity Unit of the Water Resources Branch for compliance verification and entry into the central TOXDATA data base.

9.0 NOTES ON TOXICITY

9.1 Toxicity Testing

The acute toxicity or acute lethality test has been used by the Ministry since 1965 as a biological parameter. The results of toxicity testing in this report are based on a procedure common to water quality assessment in Canada. Rainbow trout are exposed to a series of dilutions of the test sample under static conditions and an observation of mortalities over a period of four days (96 hours) is made. From these observations, an LC50 is estimated. LC50 represents the "median lethal concentration". The 96 hour LC50 is the concentration, expressed in either percent (%) effluent, mg/l or other unit of concentration, that kills 50% of the animals during 96 hours of exposure."Chemical examination alone of a complex industrial waste does not provide sufficient information on their effects on the aquatic biota for the protection of the aquatic environment. Moreover, the toxicity of a complex mixture of wastes and chemicals cannot be determined by chemical means." (1).

The best use of biological testing is to determine whether toxicity exists. If an effluent is toxic, the best use of chemistry is to subsequently determine what is the cause of that toxicity. While fundamental to monitoring and control of discharges, chemical analyses represent only an indirect means of determining potential effects in the receiving water. The knowledge of effects caused by various concentrations and mixtures in various kinds of water is a most important yet elusive link between knowledge of effluent concentrations and environmental effects. Toxicity tests on the other hand represent a direct measure of significant environmental impact. To be sure, there are problems of variability and confounding environmental factors such as pH, hardness and temperature, yet these are minor factors compared to the uncertainty of judging environmental impacts based on chemical parameters alone.

Many people equate "toxicity" with acute lethality to fish, since that is a common use, but toxicologists think of toxicity in much broader terms and include bioaccumulation, growth effects, reproduction effects etc. The broader viewpoint is appropriate to any wastes in surface waters. "Toxicity" therefore is any undesirable effect on organisms or ecosystems.

An acute effect comes speedily to a crisis or end-point while a chronic effect is long lasting or continued. The words "acute" and "chronic" in connection with toxicity tests refer to short (acute) and long (chronic) exposures. They require a specific organism as a reference. For Daphnia (water flea), with a life cycle of weeks, acute usually means two days or less while chronic usually means a week or more. However, for trout with a life cycle of years, acute usually means four days or less and chronic means several months or more.

9.2 The Basic Principles

In the basic short-term acute lethality test, an equal number of test animals are put into each container and are exposed to the sample and dilutions of the sample for 96 hours. The number of dead animals in each effluent container is counted and removed at regular, pre-determined periods. Following the exposure period, the LC50 is calculated. The protocol describing details of the rainbow trout static 96-hr acute lethality test is available from the Aquatic Toxicity Unit of Water Resources Branch of the Ministry of the Environment from John Lee at (416) 235-5806 or Gary Westlake at (416) 235-5797. In addition to the protocol, it is important that special attention be given to sampling, shipping, and storing of samples for toxicity tests. While the total time from sampling to performing the test must be within five days, no more than two of these days should be spent in shipping or at high temperatures. For each test run, 80 litres of the effluent sample should be sent in plastic pails lined with bags with no head space. The Aquatic Toxicity Unit maintains facilities at the Rexdale Laboratory to conduct static bioassays.

The unit of measurement of the short-term toxicity test is the estimated median lethal concentration (LC50). This value is the concentration which is lethal to 50% of the test animals at the end of a predetermined exposure interval. Thus, a 96-hour LC50 concentration of a toxicant will kill half the test organisms in 96-hours. It is important that the LC50 not be confused with a "safe concentration" of a toxicant. Usually the safe concentration of a substance or effluent is obtained by multiplying the LC50 value by an appropriate application factor and/or by reviewing sublethal and chronic data for fish and other aquatic organisms.

If all discharges do not kill fish at any point in the environment, including at the point of discharge, meaningful improvements in Ontario's water quality will occur. The same philosophy was used in the development of sectoral regulations under the federal Fisheries Act in the early 1970's. These regulations have only been partly effective since the toxicity control was included only as a guideline, or as a regulation (for new, altered, or expanded plants) which has not been fully implemented.

Substances in the effluents which are more persistent or which can bioaccumulate to high concentrations in biota will require much greater control. Substances in this category include many of the metals (e.g. mercury) and some higher molecular weight chlorinated organics (e.g. pentachlorophenol).

The rainbow trout is not the most sensitive organism in aquatic environments. It is chosen as a test species partly because it is robust enough to be cultured conveniently in the laboratory. If rainbow trout barely survive conditions of a discharge in four days, there are surely many organisms, which are just as important to the aquatic community, that would survive for only very short periods. The fixed period of four days is primarily chosen to express results in a reproducible fashion. Yet, because the response to most toxicants is logarithmic with respect to the duration of exposure, the majority of mortalities most commonly occur near the beginning of the test.

Given the complex mixture of substances in effluents, a lack of toxicological data and environmental criteria for many industrial substances, and an inadequate understanding of additive synergistic or antagonistic effects, more and more industrial and regulatory agencies are turning to the use of whole effluent toxicity testing for monitoring and controlling discharges to the aquatic environment. The integrative nature of the test measures the lethality of all the toxicants present acting simultaneously.

The Ontario Ministry of the Environment utilizes the fish toxicity test to identify industrial discharges acutely lethal to aquatic organisms as referred to in Policy 3 of the Ministry's Water Management Goals, Policies, Objectives and Implementation Procedures.

9.3 Legal Authority

Existing water pollution legislation provides for the Ministry to ensure that discharges are being assessed and controlled with respect to toxicity. A discharge that kills fish is considered to be a "contaminant" under Section 13 of the Environmental Protection Act (4). Several successful prosecutions using toxicity evidence support this contention.

The toxicity test may be used to determine violations of the following provincial legislation (3), (4):

a) The Ontario Water Resources Act; Revised Statutes of Ontario, 1980, Chapter 361, Section 16

> 16.- (1), Every municipality or person that discharges deposits or causes or permits the discharge of any material of any kind into or in any lake, well, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or water course is guilty of an offense. R.S.O. 1980, c. 361, s. 16 (1); 1986, c. 68, s. 23 (1).

b) The Environmental Protection Act; Revised Statutes of Ontario, 1986, Chapter 141, Section 13

> 13.- (1), Notwithstanding any other provision of this Act or the regulations, no person shall deposit, add, emit or discharge a contaminant or cause or permit the deposit, addition, emission or discharge of a contaminant into the natural environment that,

a) causes or is likely to cause impairment of the quality of the natural environment for any use that can be made of it;

b) causes or is likely to cause injury or damage to property or to plant or animal life;

(c) causes or is likely to cause harm or material discomfort to any person;

(d) adversely affects or is likely to adversely affect the health of any person;

(e) impairs or is likely to impair the safety of any person;

(f) renders or is likely to render any property or plant or animal life unfit for use by man;

(g) causes or is likely to cause loss of enjoyment of normal use of property; or

(h) interferes or is likely to interfere with the normal conduct of business. R.S.O. 1980, c. 141, s. 13 (1); 1983, c. 52. s. 4.

9.4 Toxicity References

1. Standard Methods for the Examination of Water and Wastewater. 14th ed. 1975. Prepared and published jointly by: American Public Health Association, American Water Works Association, Water Pollution Control Federation.

2. Water Management Goals, Policies, Objectives and Implementation Procedures. Ontario Ministry of the Environment. November, 1978.

3. The Ontario Water Resources Act. Revised Statutes of Ontario, 1980. Chapter 361.

4. The Environmental Protection Act, 1971. Statutes of Ontario 1971. Chapter 86.

5. Protocol To Determine the Acute Lethality of Liquid Effluents to Fish (1983) M.O.E

6. Daphnia magna Acute Lethality Test Protocol (1988) M.O.E

10.0 ENQUIRIES

Enquiries about a specific source's effluent loadings and status of abatement may be directed to:

- the owner of the source
- Ministry's Regional Office or District Offices.

Ministry addresses are provided at the end of the report (Appendix H).

Copies of this report are available from:

Director,
Communications Branch
Ministry of the Environment
135 St. Clair Ave. West (6th Floor)
Toronto, Ontario
M4V 1P5
(416) 323-4324

Enquiries concerning the toxicity section and test results in this report may be directed to the:

Aquatic Toxicity Unit
Water Resources Branch
125 Resources Road
Rexdale, Ontario
(416) 235-5797 or 235-5806

Enquiries concerning this report and the industrial abatement program may be directed to the:

Supervisor, Data Management Unit
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-4891

Manager, Industrial Section
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-2664

11.0 Notes on Appendix A

Wastewater Discharge Summary Sheets

The data tables in Appendix A have been printed from the Industrial Monitoring Information System (IMIS). MISA data for three sectors were obtained from the Sample Information System (SIS) were merged with the applicable IMIS tables. The following example shows the format used for chemical parameters:

PHOSPHOR UNF. TOT
KG/DAY (PPUT)

PHOSPHOR UNF. TOT is 'phosphorus unfiltered total'. Some of the chemical parameter names are abbreviated due to lack of space in the name field in the IMIS data base.

The following list shows parameter names which may be described by alternate names in this report. **Column A** shows those chemical parameter names as they appear in Appendix A while **Column B** shows the same parameter as it appears elsewhere in the report.

Column A	Column B
BODS	BIOCHEMICAL OXYGEN DEMAND
CHEM. OX. DEMAND	CHEMICAL OXYGEN DEMAND
K'DAHL N	KJELDAHL NITROGEN
NH3-N	AMMONIA-NITROGEN; AMMONIA
NO2 + NO3N	NITRITES AND NITRATES
NO3-N	NITRATES
RESIDUE FILTERED	DISSOLVED SOLIDS
RESIDUE PARTIC.	TOTAL SUSPENDED SOLIDS; SUSPENDED SOLIDS; TSS; SS
RESIDUE TOTAL	TOTAL SOLIDS
SOLVENT EXTRACT.	OIL AND GREASE
TEMP RISE	TEMPERATURE RISE

KG/DAY in this example is kilograms per day and represents a loading value. Other units used are M3/DAY (cubic metres day) for flow; MG/L (milligrams per litre), UG/L (micrograms per litre) and NG/L (nanograms per litre) for concentration.

(PPUT) is the Ministry Laboratory parameter code for 'phosphorus unfiltered total'. Further information on parameter codes used in the discharge data tables is available from:

Laboratory Services Branch,
Laboratory Computer Systems -
Quality Assurance Section.
125 Resources Road
Rexdale, Ontario
M9W 5L1
Phone: (416) 235-5840

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Abitibi-Price Inc.
& PLANT LOCATION: Iroquois Falls

IMIS NO.: 0000860403

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 031, 271

RECEIVING WATERBODY: DIRECT: Abitibi River
INDIRECT: Moose River to James Bay

DESCRIPTION OF ACTIVITY: Logs and wood chips (softwoods - black spruce, jack pine, balsam fir) are converted into newsprint by two different processes - stone groundwood and sulphite. The groundwood is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, paper) and a variety of organic compounds in the spent sulphite cooking liquor.

EFFLUENT TREATMENT: In-mill screens remove some bark and groundwood fiber prior to the clarifiers. Two clarifiers in parallel are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): In 1985 a control order was issued to the company setting limits of 9.0 tonnes/day and 69.0 tonnes per day for suspended solids (RSP) and Biochemical Oxygen Demand (BOD5) respectively, averaged over 30 consecutive working days.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: One trout bioassay conducted in 1989 indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage. effluent required to kill 50 % of the test fish by the end of the four days exposure was 7.1 %

03/13/91

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000086-04-0(3)    ABITIBI-PRICE INC., IROQUOIS FALLS DIV.          IRQUOIS FALLS                                                     REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                    ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS         JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
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FLOW                    ACTUAL        55721    57592    56074    58069    58324    59171    60336    50814    62861    64340    62476    60230    58834
M3 /DAY  (FTFLOW) GUIDELINE

BOD 5 DAY               ACTUAL        47600    51400    49800    54700    48500    45200    44100    42200    42200    46100    50100    47100    47417
KG /DAY (BOD5 )   REQUIREMENT        S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C                S/C

RESIDUE PARTIC.         ACTUAL         5300     6100     6300     6100     4800     6400     4200     4800     4800     4900     5500     6200     5450
KG /DAY (RSP )    REQUIREMENT        S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C                S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Abitibi-Price Inc. - Fort William Division, Thunder Bay

IMIS NO.: 0000860205

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Thunder Bay (Lake Superior)
INDIRECT:

DESCRIPTION OF ACTIVITY: Newsprint is made mainly from softwoods (black spruce, balsam fir) logs and chips by using the stone groundwood and Sulphonated Chemical Mechanical processes. The groundwood is brightened by hydrosulphite.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc) and organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clarifier and a lagoon handle the woodroom effluent. Two settling lagoons handle the rest of the mill effluent.

DISCHARGE TYPE: two continuous surface discharges

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings on the total mill effluent discharged (BOD - 42.5 kg per metric ton of product produced or alternatively 14.5 metric tons per day averaged over any 30 consecutive working days and Suspended Solids of 50 mg per litre or alternatively 2.5 metric tons per day averaged over any 30 consecutive working days)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: No exceedances. Company is in compliance.

REMEDIAL ACTIONS: Company is investigating ways to decrease toxicity .

COMMENTS: In 1989, both sampling points proved to be acutely lethal. Two trout bioassays indicated the Bark Lagoon effluent to have been acutely lethal to the fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.6% to 2.2%. Two trout bioassays indicated the Sewer Lagoon effluent to have been acutely lethal to fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 10.0% to 19.3%.

03/13/91

000086-02-0(5) ABITIBI-PRICE INC. FORT WILLIAN DIVISION THUNDER BAY REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	22916	22870	22830	22010	18310	24390	26050	28605	22937	24624	23689	23530	23563	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	12300	13500	11900	12500	10600	11500	9100	8600	7800	8700	11500	12300	10858	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
PHOSPHOR UNF.TOT.	ACTUAL	16.91	17.06	+ 7.89	19.49	15.12	21.77		+ 32.81					18.7	
KG /DAY (PPUT)	GUIDELINE	22.9	22.9	22.8	22	18.3	24.4		28.6					23.1	0
RESIDUE PARTIC.	ACTUAL	1210	1380	1310	1150	1270	1270	1820	1840	1740	730	1020	830	1298	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, + RESULT SUSPECT, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 31, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Abitibi-Price Inc., Provincial Papers Division
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0000860106

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine papers - coated and uncoated - are made from groundwood pulp using softwoods (black spruce, white spruce and balsam fir) and purchased pulp. Hydrogen peroxide is used to whiten pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clays are partially recovered by an in-mill system. High solids streams are treated by a clarifier. All mill effluent passes into a settling lagoon.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 7.3 metric tonnes per day or alternately 22 kg/metric tonne of product and total suspended solids - 2.5 metric tonnes per day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guideline for phosphorus.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None

COMMENTS: Two trout bioassays conducted in 1989 indicated the final effluent to have been non-acutely lethal to the test fish.

11/16/90

000086-01-0(6)   ABITIBI-PRICE, PROVINCIAL PAPERS   THUNDER BAY   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	59560	53180	46830	44450	48250	40650	51180	54730	54060	55790	56630	56700	51834	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	3920	3860	3550	3350	4080	3230	4260	4570	4520	4890	5030	9030	4524	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
PHOSPHOR UNF.TOT.	ACTUAL	2.68	2.82	2.67		3.14	1.55	2.41	3.83			3.96		2.85	
KG /DAY (PPUT)	GUIDELINE	59.6	53.2	46.8		48.3	40.7	51.2	54.7			56.6		50.6	0
RESIDUE PARTIC.	ACTUAL	1700	1210	1170	1080	1710	700	1470	1290	1520	1630	1540	1620	1387	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Abitibi-Price Inc. - Thunder Bay Division
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0000860007

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (black spruce, balsam fir, jack pine) logs are made into newsprint by the stone groundwood and sulphite pulping processes. Hydrosulphite is used to brighten newsprint.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and many organics (mainly the spent sulphite cooking liquor).

EFFLUENT TREATMENT: A woodroom clarifier and two parallel lagoons (2.75 acres each) remove solids.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 24.5 metric tonnes/day or 57 kg per metric tonne of product and TSS - 2.0 metric tonnes/day or 50 milligrams per litre)

MOE OR FEDERAL GUIDELINES: MOE guidelines for phosphorus.

EXCEEDANCES: A total of 19 daily control order TSS exceedances were reported from January to August based on exceeding both daily limits on a 30 day rolling average.A total of 65 daily control order BOD5 exceedances were reported from September to December based on exceeding both daily limits on a 30 day rolling average.

REMEDIAL ACTIONS: The company has installed floating booms in the lagoon to help reduce suspended solids. Polymer trials have been run with little success and installation of a larger refiner is intend to address BOD5 exceedances. Company has supplemented a small porcentage of sulphite pulp with purchased kraft. Both TSS and BOD5 exceedances are presently under investigation by IEB.

COMMENTS: Five trout bioassays conducted in 1989, indicated that both the Lakeside Lagoon final effluent and the roadside lagoon effluent, to have been acutely lethal to test fish. Statisically, the percentage of Lakeside Lagoon final effluent required to kill 50 % of the test fish by the end of the four days exposure were 13.0 %, 14.9 %, and 30.2 %. The percentage of roadside lagoon effluent required to kill 50 % of the test fish were 37.4 %. and 20.0%.

03/08/91

000086-00-0(7)   ABITIBI-PRICE INC., THUNDER BAY DIVISION   THUNDER BAY   REPORT DATE: 7 MAR 91

CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	40176	40059	39591	41648	31202	41123	41199	41492	37861	41633	43900	44666	40379	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	23481	22818	23440	25283	23317	23723	22497	25155	26052	26516	29463	29027	25066	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	3
PHOSPHOR UNF. TOT.	ACTUAL	13.6	20.7	15.9	11.5	12.2	15	16.1	14.4	14.8	16.2	15.4	17.4	15.3	
KG /DAY (PPUT)	GUIDELINE	40.2	40.1	39.6	41.6	31.2	41.2	41.2	41.5	37.9	41.6	43.9	44.7	40.4	0
RESIDUE PARTIC.	ACTUAL	2018	1979	1835	2011	1631	1410	2141	1288	1353	1288	1688	2009	1721	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Agnico Eagle Mines Ltd., (Penn Mill) Coleman twp.	IMIS NO.: 0001520105
MOE REGION:	Northeast	DISTRICT: North Bay
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 0593, 295
RECEIVING WATERBODY:	DIRECT: Giroux Lake INDIRECT: 8 km from Montreal R.	

DESCRIPTION OF ACTIVITY: Gravity and flotation are used to produced concentrates from silver ore.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of silver, cobalt, copper etc.

EFFLUENT TREATMENT: Tailings impoundment in former lake basin (Glen Lake).

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Compliance determined by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981.

EXCEEDANCES: Yes. Arsenic (10), Suspended solids (8).

REMEDIAL ACTIONS: Company ceased operation in August 1989.

COMMENTS: Decommissioning in progress.

12/12/90

000152-01-0(5)   AGNICO EAGLE MINES LIMITED - PENN MILL   COBALT   REPORT DATE: 28 FEB 91

CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1195.85	1240.85	1233.79	1164.16	1237	1277.47	1092.67	1195.12	991.48	1075.98	1109.78		1164.54	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.42	7.49	7.43	7.13	7.51	7.9	8.43	8.39	8.07	7.97	7.98		7.79	
(PH)	GUIDELINE														0
ARSENIC UNF.TOT.	ACTUAL	1.137	1.18	1.57	0.58	0.99	0.87	1.08	1.03	1.1	1.24	1.39		1.11	
KG /DAY (ASUT)	GUIDELINE	0.597	0.62	0.617	0.582	0.618	0.639	0.546	0.598	0.496	0.537	0.555		0.526	10
COBALT UNF.TOT.	ACTUAL	0.063	0.13	0.62	0.06	0.02	0.01	0.01	0.05	0.01	0.01	0.03		0.092	
KG /DAY (COUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C			
COPPER UNF.TOT.	ACTUAL	0.012	0.01	0.02	0.01	0.01	0.07	0.03	0.01	0.01	0.01	0.01		0.018	
KG /DAY (CUUT)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	1.749	4.58	31.43	1.42	1.72	0.69	0.04	0.11	0.33	1.31	1.39		4.07	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C			
NICKEL UNF.TOT.	ACTUAL	0.221	0.22	0.68	0.02	0.02	0.07	0.02	0.02	0.01	0.03	0.01		0.120	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C			
RESIDUE PARTIC.	ACTUAL	21.21	160.49	910.23	48.31	76.26	27.38	3.39	5.86	3	20.11	19.14		118	
KG /DAY (RSP)	GUIDELINE	17.9	18.6	18.5	17.5	18.6	19.2	16.4	17.9	14.9	16.1	16.6		15.8	8

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 18 OUT OF 66, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Agnico Eagle Mines Ltd., (Refinery) Coleman twp.	IMIS NO.: 0001520006
MOE REGION:	Northeast	DISTRICT: North Bay
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 0593, 295
RECEIVING WATERBODY:	DIRECT: 5.5 km from Farr Creek INDIRECT: 109 km from Montreal R.	

DESCRIPTION OF ACTIVITY: Refines and smelts silver concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of silver, cobalt, copper, arsenic etc.

EFFLUENT TREATMENT: Cyanide destruction

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Compliance determined by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981'.

EXCEEDANCES: Yes. Arsenic (12) , cyanide (5).

REMEDIAL ACTIONS: Company ceased operations in August 1989; decommissioning operations in progress.

COMMENTS: Decommissioning in progress.

One trout bioassay conducted in 1989, indicated the mill effluent to be non-acutely lethal to test fish.

03/05/91

000152-00-0(6) AGNICO-EAGLE MINES LTD.- REFINERY COBALT REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	134.49	226.34	163.73	208.67	205.08	177.75	125.34	155.83	167.45	145.98	157.23	210.88	173	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.11	7.34	6.92	7.76	7.18	7.62	7.4	7.26	8.16	7.82	8.48	7.53	
(PH)	GUIDELINE														0
ARSENIC UNF.TOT.	ACTUAL	0.098	0.52	0.19	0.456	0.106	0.103	0.145	0.156	0.12	0.162	0.26	0.14	0.205	
KG /DAY (ASUT)	GUIDELINE	0.067	0.112	0.082	0.104	0.102	0.089	0.063	0.078	0.084	0.073	0.079	0.105	0.086	12
CYANIDE FREE	ACTUAL	0.403	1.368	0.451	1.065	0.073	0.002	0.019	0.031	0.2	0.94	0.02	0.21	0.397	
KG /DAY (CCNFUR)	GUIDELINE	0.269	0.449	0.328	0.417	0.406	0.356	0.251	0.312	0.335	0.292	0.315	0.421	0.346	5
COBALT UNF.TOT.	ACTUAL	0.079	0.097	0.097	0.167	0.13	0.002	0.021	0.058	0.09	0.04	0.002	0.008	0.066	
KG /DAY (COUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
COPPER UNF.TOT.	ACTUAL	0.001	0.004	0.002	0.004	0.01	0.002	0.001	0.002	0.005	0.21	0.006	0.002	0.021	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	0.273	0.621	0.121	0.322	0.167	0.382	0.523	0.676	0.59	0.15	0.35	0.07	0.35	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
MERCURY UNF.TOT.	ACTUAL	0.00037	0.0009	0.001	0.00001	0.00001	0.000027	0.00088	0.00022	0.001	0.00004	0.00002	0.00005	0.00038	
KG /DAY (HGUT)	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL	0.191	0.442	0.241	0.238	0.002	0.002	0.064	0.034	0.06	0.4	0.002	0.002	0.158	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE TOTAL	ACTUAL	207.92	357	272.896	303	289	255.248	130.855	152.713	262.56	178.09	115.72	53.09	215	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, I* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 76% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Algoma Steel
& PLANT LOCATION: Sault Ste. Marie

IMIS NO.: 0000040006

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291, 292, 298

RECEIVING WATERBODY: **DIRECT:** St. Mary's River
INDIRECT: East Davignon Creek

DESCRIPTION OF ACTIVITY: Produces iron and steel from coal (coke), limestone, iron concentrates/pellets and scrap by using coke ovens, blast furnaces, cupola, and rolling mills. steel.

EFFLUENT CHARACTERISTICS: Contains suspended solids (coal, coke, iron) and coal tar compounds (ammonia, cyanide, oil and grease, phenols)

EFFLUENT TREATMENT: Clarifiers, settling basins, brill skimmers , ammonia recovery stills, biological and physical-chemical treatment processes (filtration plant).

DISCHARGE TYPE: continuous; 6 outfalls; terminal basin discharges through a submerged diffuser.

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE):** An Amending Control Order was issued on September 23, 1988 establishing the following abatement schedule and limits:
Terminal Basin (control point 0700) - Feb. 15, 1989; Ammonia and cyanide limited in combination based on toxicity considerations
- Solvent Extractables 1589 kg/day; susp. solids 7355 kg/day are in effect.
- Jun. 30, 1989 Phenolics 22.7 kg/day
- Mar. 31, 1990 Solvent Extractables 1023 kg/day; susp. solids 5108 kg/day

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharge in Ontario; on control points 0100, 0200, 0300, 0400, 0600

EXCEEDANCES: Yes. Company has exceeded its Control Order requirements at the Terminal Basin eleven times for suspended solids (RSP) and seven times for solvent extractables (SOLEXT).

REMEDIAL ACTIONS: An amending Control Order was issued on September 23, 1988. A Certificate of Approval for the construction of a dual media filtration and biological treatment plant was issued on January 23, 1989. It is expected that this will bring the effluent into compliance for suspended solids, solvent extractables, phenols, cyanide and ammonia.
The construction was completed in 1990. The effluent is now in compliance for suspended solids and solvent extractables.

COMMENTS: Sampling frequencies for the following parameters are weekly: dissolved iron (FEFT), ammonia-nitrogen (NH3-N), phenols (PHNOL).
Sampling frequencies for the following parameters are daily: cyanide (CCNFUR), pH, suspended solids (RSP), dissolved zinc (ZNFT).

WASTEWATER DISCHARGE SUMMARY
1989

Two trout bioassays conducted in 1989, indicated that both the bar and strip lagoon effluent and the terminal basin effluent, to have been non-acutely lethal to test fish.

The data for one of two trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the Bar and Strip Lagoon effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure was 80.6 %. The other sample was determined to have been non-acutely lethal. The data for four more trout bioassays conducted on samples collected from the Tube Mill, and #2 Tube Mill were determined to have been non-acutely lethal to test fish.

03/13/91

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0700 DATA FOR 1989 - GROSS DATA - TERMINAL BASIN

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	301854	287307	287762	311856	310946	320493	284125	298218	303673	321402	323393	315086	305510	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.3	7.9	7.9	8	7.9	7.9	7.7	7.6	7.5	7.6	7.8	7.9	7.833	
(PH)	GUIDELINE														0
CYANIDE FREE	ACTUAL	21.2	25.9	17.3	24.9	12.2	12.6	14.2	8.9	6.1	3.2			14.7	
KG /DAY (CCNFUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				0
CHEM. OX DEMAND	ACTUAL	10565	9193	7194	5925	15236	1153	15911	10735	8199	13177			9729	
KG /DAY (COD)	GUIDELINE														
IRON FIL.TOT.	ACTUAL								2621					2621	
KG /DAY (FEFT)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	3794	1672	1341	1996	2301	1985	2167	2624	683	2314	133	85	1758	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	2656	2356	11696	2277	2363	2178	1960	1730	1367	1125			2971	
KG /DAY (NNHTUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				0
PHENOLS UNF-REAC	ACTUAL	562	575	50.9	34.3	20.2	9.9	8.24	6.6	5.48	4.4	7.858	12.8	108.1	
KG /DAY (PHNOL)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	22.7	22.7	22.7	22.7	22.7	22.7	22.7	0
RESIDUE FILTERED	ACTUAL	31393	25858	16978	36171	30784	32983	24116	27433	29760				28386	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7546	7470	8633	9666	8085	11538	7102	9245	7864	9642	8489	7797	8590	
KG /DAY (RSP)	REQUIREMENT	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	7355	11
SOLVENT EXTRACT.	ACTUAL	1811	2298	1151	1871	1555	1281	852	1700	1791	2603	7477	1239	2136	
KG /DAY (SOLEXT)	REQUIREMENT	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	7

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 18 OUT OF 68, FOR A TOTAL COMPLIANCE RECORD OF 74% IN 1989.

CCNFUR, COD, FEFT, NNHTUR, RSF NOT MONITORED UNDER MISA MONITORING REGULATION

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0500 DATA FOR 1989 - GROSS DATA - COLD MILL 24"

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	5410	5410	5410	5455	5410	5410	5410	5410	5410	5410	4972	4636	5313	
PH (PH)	ACTUAL GUIDELINE	7.8	7.4	7.8	7.8	7.9	7.9	8	8	7.7	7.9	7.937	7.834	7.831	0
IRON FIL.TOT. KG /DAY (FEFT)	ACTUAL REQUIREMENT	0.92 5.41	0.27 5.41	0.27 5.41	0.54 5.41	0.27 5.41	0.22 5.41	0.38 5.41	0.27 5.41	0.38 5.41	0.27 5.41			0.38 5.41	0
IRON UNF.TOT. KG /DAY (FEUT)	ACTUAL GUIDELINE	1.14	0.27	0.325	1.08	0.49	1.73	0.87	1.35	0.92	0.49	0.292	1.659	0.885	
RESIDUE FILTERED KG /DAY (RSF)	ACTUAL GUIDELINE	303	287	135.2	378.7	303	303	346	314	379	243			299	
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL REQUIREMENT	5.4 81.2	5.4 81.2	11 81.2	10.8 81.8	5.4 81.2	10.8 81.2	10.8 81.2	6.5 81.2	5.4 81.2	8.1 81.2	13 81.2	6.7 81.2	8.3 81.2	0
SOLVENT EXTRACT. KG /DAY (SOLEXT)	ACTUAL REQUIREMENT	5.4 81.2	5.4 81.2	27 81.2	5.4 81.2	5.4 81.2	5.4 81.2	5.4 81.2	14.1 81.2	19.5 81.2	5.4 81.2	0.266 81.2	2.215 81.2	8.4 81.2	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

FEFT, RSF ARE NOT MONITORED UNDER MISA MONITORING REGULATION

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - BAR AND STRIP LAGOON

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	49551	49551	49551	49551	49551	49551	49551	49551	49551	49551	118143	122558	61351	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.4	9.5	9.6	9.3	9	8.6	9.1	8.7	8.7	8.492	8.122	8.801	
(PH)	GUIDELINE														1
CYANIDE FREE	ACTUAL	12.9	9.9	3.96	< 1.49	1.49	9.91	13.87	20.8	18.3	24.8			11.74	
KG /DAY (CCNFUR)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	141.7	64.4	152.1	99.1	66.9	133.8	192.8	47.6	91.7	139.2	77.219	77.209	106.98	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	76.3	39.6	70.4	59.5	38.6	64.4	90.7	107	156	124			82.7	
KG /DAY (NNHTUR)	GUIDELINE	495.5	495.5	495.5	495.5	495.5	495.5	495.5	495.5	495.5	495.5			495.5	0
PHENOLS UNF-REAC	ACTUAL	1.54	1.88	2.58	0.743	2.58	0.4	1.34	0.793	0.25	0.84	10.256	3.307	2.21	
KG /DAY (PHNOL)	GUIDELINE	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	2.36	2.45	1.23	7
RESIDUE FILTERED	ACTUAL	7185	8076	9661	10058	8572	10305	7928	6987	8622	4410			8180	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	297	496	446	347	347	347	396	248	218	297	1160	1441	503	
KG /DAY (RSP)	GUIDELINE	743	743	743	743	743	743	743	743	743	743	1772	1838	920	0
SULPHATE UNF.REAC	ACTUAL			1338	743		496	842	595	396				735	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC FIL.TOT.	ACTUAL	10.9	0.99	2.48	0.5	0.5	0.5	1.49	2.48	0.5	0.5	17.605	32.733	5.93	
KG /DAY (ZNUT)	GUIDELINE	49.6	49.6	49.6	49.6	49.6	49.6	49.6	49.6	49.6	49.6	118.1	122.6	61.35	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA (EXCEPTIONS NOTED BELOW)

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 58, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1989.

REPORTED VALUES FOR CCNFUR, NNHTUR,RSF, SSO4UR NOT MONITORED UNDER MISA MONITORING REGULATION

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA - 60" BF SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	49097	49097	49097	49097	49097	49097	49097	49097	49097	49097	55711	75560	51853	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9	8.5	8.3	8.3	8.4	8.1	8.4	8.1	7.8	7.9	7.99	7.992	8.232	0
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	16.2	13.3	110	14.7	14.7	13.3	26.5		3.4	2.9	1.586	2.462	18.3	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	442	245	442	319	245	98	245	108	64	98	275	287	239	
KG /DAY (RSP)	GUIDELINE	736	736	736	736	736	736	736	736	736	736	836	1133	778	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA (EXCEPTIONS NOTED BELOW)

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS DATA - 30" BF SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	29549	29549	29549	29549	29549	29549	29549	29549	29549	29549	4057	4473	25335	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.5	8.3	8.6	8.3	8.4	8.6	8.6	8.6	8.5	8.2	7.847	7.99	8.370	0
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	7.7	5.6	5.6	40	18	6.5	8.6	12.1	8.6	24.8	2.061	1.496	11.75	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	177	89	532	325	1566	207	148	186	349	236	20	12	321	
KG /DAY (RSP)	GUIDELINE	443	443	443	443	443	443	443	443	443	443	61	67	380	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1989.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS DATA - TUBE MILL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	ND	ND	ND	ND	ND	ND	6183	6183	6183	6183	1056	1231	2252	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	ND	ND	ND	ND	ND	ND	7.8	7.8	7.9	8.5	8.214	8.814	8.171	
(PH)	GUIDELINE														0
IRON UNF.TOT.	ACTUAL	ND	ND	ND	ND	ND	ND	25.4	7.5	6.6	0.99	1.231	0.061	6.96	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	ND	ND	ND	ND	ND	ND			0.031	0.05	0.017	0.012	0.03	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	ND	ND	ND	ND	ND	ND	390	216	501	804			478	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	ND	ND	ND	ND	ND	ND	43	27.2	23	6.2	6.5	7.5	9.5	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, ND - NO DISCHARGE - MILL DOWN, # - MISA DATA (EXCEPTIONS NOTED BELOW)
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

PHNOL, RSF ARE NOT MONITORED UNDER MISA MONITORING REGULATION

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
CONTROL POINT: 0600 DATA FOR 1989 - GROSS DATA - COLD MILL BASIN SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5455	5455	5455	5410	5455	5455	5455	5455	5455	5455	864		5034	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	7.4	7.8	7.8	8	7.9	8.1	8	7.4	7.9	7.7		7.81	
(PH)	GUIDELINE														0
IRON FIL.TOT.	ACTUAL				0.54									0.54	
KG /DAY (FEFT)	GUIDELINE														
IRON UNF.TOT.	ACTUAL				1.1							0.078		0.11	
KG /DAY (FEUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5.5	5.5	11	10.8	11	16	5.5	0	5.5		1.382		6.56	
KG /DAY (RSP)	GUIDELINE	81.8	81.8	81.8	81.2	81.8	81.8	81.8	81.8	81.8		13.0		68.06	0
SOLVENT EXTRACT.	ACTUAL				5.41							0.086		2.75	
KG /DAY (SOLEXT)	GUIDELINE				81.2							13.0		47.06	0

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000004-00-0(6) ALGOMA STEEL SAULT STE MARIE REPORT DATE: 17 MAR 91
S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/002/ LAKE HURON
INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0500 0600 0700
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	440916	426369	426824	450918	450008	459555	429370	443463	448918	466847	508196	523544	456227	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	49.6	47.9	49.9	49.8	49.9	49.4	57.2	57.2	55.5	56.7	55.98	48.652	52.3	
(PH)	GUIDELINE														
CYANIDE FREE	ACTUAL	34.1	35.8	21.26	24.9	13.69	22.71	28.07	29.7	24.4	28			26.26	
KG /DAY (CCNFUR)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	10565	9193	7194	5925	15236	1153	15911	10735	8199	13177			9729	
KG /DAY (COD)	GUIDELINE														
IRON FIL.TOT.	ACTUAL	0.92	0.27	0.27	1.08	0.27	0.22	0.38	0.27	0.38	0.27			0.43	
KG /DAY (FEFT)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	3960.7	1755.6	1609.0	2152.0	2401.1	2140.3	2421.2	2692.6	794.2	2482.4	214.9	167.7	1899.31	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	2732	2396	11766	2337	2402	2242	2051	1837	1523	1249			3053.5	
KG /DAY (NNHTUR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	563.54	576.88	53.48	35.043	22.78	10.3	9.58	7.393	5.761	5.29	18.1	16.1	110.36	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	38881	34221	26774	46608	39659	43591	32780	34950	39262	5457			34218	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	8473	8311	10075	10679	10259	12217	7950	9821	8529	10287	9964	9551	9676	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	1816.4	2303.4	1178	1881.81	1560.4	1286.4	857.4	1714.1	1810.5	2608.4	7477.0	1241.6	2144.6	
KG /DAY (SOLEXT)	GUIDELINE														
SULPHATE UNF.REAC	ACTUAL			1338	743		496	842	595	396				735	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC FIL.TOT.	ACTUAL	10.9	0.99	2.48	0.5	0.5	0.5	1.49	2.48	0.5	0.5	17.61	32.73	5.93	
KG /DAY (ZNFT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 28 OUT OF 251, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1989.

THE 'TOTAL COMPLIANCE' FIGURE REPRESENTS BOTH CONTROL ORDER REQUIREMENTS AND GUIDELINE OBJECTIVES FOR THIS PLANT

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: American Barrick Resources Corp. IMIS NO.: 0108920000
& PLANT LOCATION: McDermott Property
Kirkland Lake

MOE REGION: Northeast DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Magusi River
INDIRECT: James Bay

DESCRIPTION OF ACTIVITY: 1360 - 1500 tonne/day gold mine/mill complex. Gold is removed from the ore slurry by the carbon in pulp process and refined by using cyanide.

EFFLUENT CHARACTERISTICS: suspended solids, arsenic, copper, nickel, zinc, lead, NH3, CN.

EFFLUENT TREATMENT: Twin tailings ponds are controlled with extended effluent storage and natural degradation.

DISCHARGE TYPE: Seasonal - to occur in the months between March 1 and July 1.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL: June 7, 1989: The present C. of A sets the effluent concentrations for various parameters including cyanide (2 mg/l), metals, excluding calcium, magnesium potasium and sodium (1 mg/l), arsenic (0.5 mg/l), copper (0.3 mg/l), nickel (0.2 mg/l), zinc (0.1 mg/l), lead (0.1 mg/l), cadmium (0.001 mg/l), mercury (0.001 mg/l and suspended solids (15 mg/l).

EXCEEDANCES: C. of A. states iron not to exceed background level in receiver; no exceedances of receiver level shown.

REMEDIAL ACTIONS:

COMMENTS:

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/13/91

010892-00-0(0) AMERICAN BARRICK RESOURCES CORP., MCDERM KIRKLAND LAKE REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL						0.001	0.001						0.005	
MG/L AS AS	REQUIREMENT						0.5	0.5						0.5	0
CALCIUM UNF.TOT.	ACTUAL						0	13.5						6.75	
MG/L AS CA	GUIDELINE														
CYANIDE AVAIL	ACTUAL						0.03	0.015						0.023	
MG/L AS HCN	REQUIREMENT						2	2						2	0
CYANIDE FREE	ACTUAL						0.01							0.01	
MG/L AS HCN	GUIDELINE														
CADMIUM UNF.TOT.	ACTUAL						0.001	0.001						0.001	
MG/L AS CD	REQUIREMENT						0.001	0.001						0.001	0
COPPER UNF.TOT.	ACTUAL						0.098	0.063						0.081	
MG/L AS CU	REQUIREMENT						0.3	0.3						0.3	0
IRON UNF.TOT.	ACTUAL						1.05	1.44						1.25	
MG/L AS FE	REQUIREMENT														
MERCURY UNF.TOT.	ACTUAL						0	0						0	
UG/L AS HG	GUIDELINE														
MAGNESIM UNF.TOT.	ACTUAL						0	2.05						1.03	
MG/L AS MG	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL						0.003	0.005						0.004	
MG/L AS NI	REQUIREMENT						0.2	0.2						0.2	0
NH3-N FIL.REAC	ACTUAL						2	1.5						1.75	
MG/L (NNH3FR)	GUIDELINE						10	10						10	0
NITRITES UNF. REC.	ACTUAL						0	0						0	
MG/L AS N (NNO2UR)	GUIDELINE														
LEAD UNF.TOT.	ACTUAL						0.001	0.001						0.001	
MG/L AS PB	REQUIREMENT						1	1						1	0
PH	ACTUAL						7.12	7.09						7.11	
(PH)	GUIDELINE														0
PHOSPHATES UNF.TOT	ACTUAL						0	0.18						0.09	
MG/L AS P (PPO4UT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL						6.5	10.5						8.5	
MG/L (RSP)	REQUIREMENT						15	15						15	0

010892-00-0(0)   AMERICAN BARRICK RESOURCES CORP., MCDERM   KIRKLAND LAKE   REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE TOTAL	ACTUAL						0							0	
MG/L (RST)	GUIDELINE														
SULPHATE UNF.REAC	ACTUAL							0						0	
MG/L AS SO4	GUIDELINE														
AS SO4	ACTUAL						0							0	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL						0.015	0.022						0.019	
MG/L AS ZN	GUIDELINE						0.1	0.1						0.1	0

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: American Standard, Div of Wabco Standard Inc., Cambridge

IMIS NO.: 0001470004

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 3041, 3042

RECEIVING WATERBODY:
DIRECT: Speed River to Grand River
INDIRECT: 159 km to Lake Erie

DESCRIPTION OF ACTIVITY: Sinks, tubs, etc. are fabricated and enamelled.

EFFLUENT CHARACTERISTICS: Contains heavy metals

EFFLUENT TREATMENT: pH adjustment, precipitation, flocculation and sedimentation 5 days a week, 230 days a year. Sludge is dewatered by a filter press.

DISCHARGE TYPE: continuous flow 7 am to 12 pm through a drain

COMPANY LIMITS SET BY: NEW CERTIFICATE OF APPROVAL : Issued Dec 28/90 sets concentration and loading limits. For 1989 C. of A issued April 1970 require discharge to meet Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) at all times.

EXCEEDANCES: Yes. Three Suspended Solids (RSP) exceedances occurred. Compliance record is 95%. A replacement parts washer was installed August 1989 and is the batch discharge which causes exceedances.

REMEDIAL ACTIONS: Company submitted application for approval in July 1990 for WWTP upgrade which consists of flow equalization and improved sedimentation. New C. of A issued Dec 28/90. Scheduled completion is July, 1991 and is expected to result in compliance .

COMMENTS: Reported loadings are based on measured flowrate.

03/06/91

000147-00-0(4)   AMERICAN STANDARD DIVISION OF WABCO STANDARD INC   CAMBRIDGE   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	189.9	322	252.9	294.2	254.5	298.8	343.8	228.3	186.8	173.3	199.7		249	
M3 /DAY (FTFLOW)	REQUIREMENT	454	454	454	454	454	454	454	454	454	454	454		454	0
PH	ACTUAL	8.5	8.5	8.15	8.3	8.15	7.9	8.1	9.4	9.2	9.5	9.1		8.62	
(PH)	REQUIREMENT														0
IRON UNF.TOT.	ACTUAL	0.06	0.11	0.41	0.103	0.08	0.1	0.12	0.41	0.13	0.03	0.03		0.144	
KG /DAY (FEUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		0.44	0
NICKEL UNF.TOT.	ACTUAL	0.03	0.04	0.032	0.022	0.013	0.04	0.01	0.02	0.02	0.01	0.02		0.023	
KG /DAY (NIUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		0.44	0
RESIDUE PARTIC.	ACTUAL	5.52	8.86	3.81	4.71	2.5	2.99	3.44	16.4	14.5	1.73	3.99		6.22	
KG /DAY (RSP)	REQUIREMENT	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6		6.6	3
ZINC UNF.TOT.	ACTUAL	0.007	0.09	0.028	0.225	0.018	0.021	0.02	0.05	0.03	0.01	0.02		0.047	
KG /DAY (ZNUT)	REQUIREMENT	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		0.44	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 66, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Atlas Speciality Steels
& PLANT LOCATION: (Division of Sammi Atlas Inc.)
Welland
IMIS NO.: 0001610005

MOE REGION: West Central
DISTRICT: Welland

INDUSTRIAL SECTOR: Iron and Steel
SIC CODE: 291

RECEIVING WATERBODY: **DIRECT:** Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Secondary steel industry; recycle scrap metal for melting in electric furnace. Various grades of stainless steel are made. Plant is not an integrated mill as there are no coking operations or blast furnaces.

EFFLUENT CHARACTERISTICS: Contains dissolved metals, Total Suspended Solids and Oil and Grease,

EFFLUENT TREATMENT: Contact and non-contact cooling water are treated at two filtration plants. Pickling acids and rinses are treated at a waste acid solidification plant. Tertiary treatment consists of pH adjustment for heavy metal (chrome, lead) removal and filtration.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: **MOE GUIDELINES:** Objectives for the Control of Industrial Waste Discharges In Ontario

EXCEEDANCES: Company exceeded (5) total suspended solids (RSP), (9) cadmium, (1) chromium and (2) oil and grease guidelines.

REMEDIAL ACTIONS: In Aug,1989 company began to recirculate and treat waste water in the North plant Water Treatment System achieving compliance with the objectives.

COMMENTS: Two trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

Under the MISA monitoring regulation in 1989 four trout bioassays , indicated that both the 42 " sewer and the intake water supply to have been non-acutely lethal to test fish.

This company has converted to MISA monitoring (Nov. 1989) "gross" loadings and data should not be compared to the "Net" loadings of IMIS in previous years. The discharge has been historically assessed against 'Net' data.

03/21/91

000161-00-0(5) ATLAS SPECIALTY STEELS, DIVISON OF SAMMI ATLAS INC WELLAND

REPORT DATE: 13 MAR 91

CONTROL POINT: 0100 DATA FOR 1989 - 42 INCH SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	29111	31248	28217	32274	20575	30375	16784	21097	22820	14480	13374	9520	22490	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.42	7.82	7.44	7.6	7.6	7.4	6.6	6.6	7.5	7.7	7.703	7.768	7.346	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL				0	0	0	0	0	45.579	28.921	27.028	22.499	13.800	
KG /DAY (BOD5)	REQUIREMENT				484	309	456	252	316	342	217	201	143	227	0
CADMIUM UNF.TOT.	ACTUAL	0.145	0.155	0.14	0.161	0.103	0.152	0.084	0.105	0.018	0.0145	0.002	0.000	0.090	
KG /DAY (CDUT)	REQUIREMENT	0.029	0.031	0.028	0.032	0.021	0.03	0.017	0.021	0.023	0.014	0.013	0.010	0.022	9
CHROMIUM UNF.TOT.	ACTUAL	40.6	0.155	4.76	5.48	3.49	2.73	0.67	1.90	0.23	1.40	0.72	0.02	5.18	
KG /DAY (CRUT)	REQUIREMENT	29.1	31.2	28.2	32.3	20.6	30.4	16.8	21.1	22.8	14.5	13.4	9.5	22.5	1
IRON UNF.TOT.	ACTUAL	870	143	230	139	88.4	69.8	15.1	122	43.3	18.7	1.042	0.366	145	
KG /DAY (FEUT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL				0	0	0	0	0	0	0	0	0	0	
KG /DAY (PHNOL)	GUIDELINE				0.645	0.412	0.608	0.336	0.422	0.456	0.290	0.267	0.190	0.403	0
PHOSPHOR UNF.TOT.	ACTUAL					0	0					0.635	0.194	0.21	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5588	893	543	954	608	60.7	18.4	236	11.4	121	158	102	775	
KG /DAY (RSP)	REQUIREMENT	437	469	423	484	309	456	252	316	342	217	201	143	337	5
SOLVENT EXTRACT.	ACTUAL	29	60.8	19.6	29.0	18.5	103	30.2	358	387	7.23	63.6	27.9	92.5	
KG /DAY (SOLEXT)	REQUIREMENT	437	469	423	484	309	456	252	316	342	217	201	143	337	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 69, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1989.

REPORTED VALUES FOR BOD5, PHNOL NOT MONITORED BY MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ault Foods Limited.
& PLANT LOCATION: Winchester

IMIS NO.: 0063240709

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1049

RECEIVING WATERBODY: DIRECT: Castor river
INDIRECT: Ottawa River

DESCRIPTION OF ACTIVITY: Manufacture of butter, and cheese and dried powder milk-based products.

EFFLUENT CHARACTERISTICS: Effluent generated from processing, cleaning and cooling activities. Contaminants in wastewater primarily organic in nature.

EFFLUENT TREATMENT: Aerobic biological treatment including sludge separation and effluent polishing.

DISCHARGE TYPE: Annual spring discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 19, 1986 #4-078-85-866. Stage 3 Performance Compliance Requirements (as Jan. 31,1989):

Parameters	Effluent Concentrations mg/l	Annual Effluent Waste Loadings kg/year
BOD5, Total	5	807
Suspended Solids	15	2425
Total Phosphorus	1	161.7
Ammonia-Nitrogen	5	807
Hydrogen Sulphide	0	0

EXCEEDANCES: Yes, suspended solids (RSP) and ammonia nitrogen (NNHTUR) requirements were exceeded.

REMEDIAL ACTIONS: Staged upgrading of treatment works has been completed but capacity problem found. Discussions of solutions to capacity problem initiated with company. Resolution to be established in 1991.

COMMENTS: Company granted approval for emergency fall discharge (Nov 1989). Occurrence reports for violations have been issued.
Only a single spring discharge in 1990.

03/08/91

006324-07-0(9)   AULT FOODS LTD.   WINCHESTER   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				93320							79779		173099	
M3 /YR (FTFLOW)															
BOD 5 DAY	ACTUAL				466.6							255		722	
KG /YR (BOD5)	REQUIREMENT				807							807		807	0
NH3-N TOTAL	ACTUAL				1017.2							91.7		1109	
KG /YR (NNHTUR)	REQUIREMENT				807							807		807	1
PHOSPHOR UNF.TOT.	ACTUAL				78.38							42.2		120.6	
KG /YR (PPUT)	REQUIREMENT				162							162		162	0
RESIDUE PARTIC.	ACTUAL				2053							1675		3728	
KG /YR (RSP)	REQUIREMENT				2425							2425		2425	1
SULPHIDE UNF.REAC	ACTUAL				0							0		0	
KG /YR (SSIDUR)	REQUIREMENT				0							0		0	0
PH FIELD	ACTUAL				7.98							7.53		7.76	
(FWPH)	GUIDELINE														
WATER TEMP	ACTUAL				6.5							7.6		7.05	
DEG.C (FWTEMP)	REQUIREMENT														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Beaver Wood Fibre Company
& PLANT LOCATION: Thorold

IMIS NO.: 0001620004

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Beaverdams Creek to Twelve Mile Creek
INDIRECT: 13.3 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Paperboard is made from pulp and clean wastepaper.

EFFLUENT CHARACTERISTICS: contains suspended solids

EFFLUENT TREATMENT: Primary clarifier on total mill effluent removes solids. Spills of broke (pulp in water) and rejects from pulp cleaning are either recycled or sent to landfill. Sludge handling and mill effluent pumping systems were duplicated to minimize clarifier bypassing.

DISCHARGE TYPE: Continuous through a submerged outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Target loads set by Pulp and Paper Committee consistent with primary treatment technology.

EXCEEDANCES: Company meets guideline limits.

REMEDIAL ACTIONS: Company commenced abatement program in 1991 to further reduce discharge loadings of BOD5 and suspended solids.

COMMENTS: Company submitted comprehesive abatement strategy to reduce discharge loadings of BOD & SS.
Company intention is to comply with MISA objectives.

Two trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish

03/08/91

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000162-00-0(4)    BEAVER WOOD FIBRE COMPANY., LIMITED             THOROLD                                                          REPORT DATE: 25FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - BEAVERDAMS CR - GROSS DATA                                                                          ANNUAL      TOTAL
FLOW/LOADING         PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                    ACTUAL         14400   15100   15500   15100   15900   15100   15500   15100   15500   14700   14740   14900    15128
M3 /DAY (FTFLOW)    GUIDELINE

BOD 5 DAY               ACTUAL          1670    1661    1535    1648    1892    1752    1767    1600    1442    1470    1690    1535     1639
KG /DAY (BOD5 )     REQUIREMENT         2500    2500    2500    2500    2500    2500    2500    2500    2500    2500    2500    2500     2500           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.


000162-00-0(4)    BEAVER WOOD FIBRE COMPANY., LIMITED             THOROLD                                                          REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - BEAVERDAMS CR - GROSS DATA                                                                          ANNUAL      TOTAL
FLOW/LOADING         PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.         ACTUAL
KG /DAY (RSP )      REQUIREMENT          893     951     806     876    1113     876     930     906    1008     691     722     715      874

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*********************************************************************************************************************************************************
GROSS DATA PROVIDED FOR COMPARISON PURPOSES


000162-00-0(4)    BEAVER WOOD FIBRE COMPANY., LIMITED             THOROLD                                                          REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - BEAVERDAMS CR - NET DATA                                                                            ANNUAL      TOTAL
FLOW/LOADING         PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE FILTERED        ACTUAL          2520    2265    2480    2265    2147    1812    1550    1812    1705    1764    1617    2011     1996
KG /DAY (RSF )      GUIDELINE

RESIDUE PARTIC.         ACTUAL           677     800     651     725     875     725     698     755     620     470     501     507      667
KG /DAY (RSP )      REQUIREMENT          904     904     904     904     904     904     904     904     904     904     904     904      904           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	B. F. Goodrich Niagara Falls	IMIS NO.: 0000370304
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	O C M	SIC CODE: 3731
RECEIVING WATERBODY:	DIRECT: Welland River INDIRECT: Niaga River	

DESCRIPTION OF ACTIVITY: Polyvinyl chloride resins are made from purchased vinyl chloride monomer.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Two separate wastewater treatment systems with combined effluent treated in aeration pond. Wastewater from one plant is treated by an aeration pond and polishing lagoon. From another plant, wastewaters are equalized, neutralized and treated by an activated sludge process before discharge to the aeration pond.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE CERTIFICATE OF APPROVAL OR FEDERAL GUIDELINES: Limits set by MOE, Certificate of Approval and Federal guidelines. C of A limits for BOD5, total suspended solids, phosphorous and vinyl chloride .

EXCEEDANCES: None

REMEDIAL ACTIONS: None.

COMMENTS:

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

MISA Toxicity Results.

For four trout bioassays in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/12/91

000037-03-0(4)   B.F. GOODRICH CANADA INC.   NIAGARA FALLS   REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2376	2262	2090	2717	2905	2840	2753	3298	2657	2574	3039	2428	2662	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	6.8	6.9	6.9	7	7	6.8	6.7	6.9	7.7	7.6	7.8	7.1	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	18	16	13	16	12	16	23	32	37	21	30	27	21.8	
KG /DAY (BOD5)	REQUIREMENT	35.6	33.9	31.4	40.8	43.6	42.6	41.3	49.5	39.9	38.6	45.6	36.4	39.9	0
CHEM. OX DEMAND	ACTUAL	28.98	25.98	19.76	16.45	7.52	11.22	8.18	51.28	27.18	25.61	22.32	42.18	23.89	
MG/L (COD)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	2.21	0.58	0.22	0.72	0	0.06	1.16	1.71	2.66	0.07	0.52	0	0.83	
KG /DAY (NNH4FR)	GUIDELINE	23.8	22.6	20.9	27.2	29.1	28.4	27.5	33	26.6	26.7	30.3	24.3	26.7	0
PHOSPHOR UNF.TOT.	ACTUAL	0.06	0.1	0.14	0	0	0.25	0	0.23	0.13	0.67	0.25	0.24	0.17	
KG /DAY (PPUT)	REQUIREMENT	2.38	2.26	2.09	2.72	2.91	2.84	2.75	3.3	2.66	2.67	3.03	2.43	2.67	0
RESIDUE FILTERED	ACTUAL	15.11	4.04	5.49	5.01	0.02	3.57	1.56	4.7	0	0.51	6.57	10.35	4.74	
MG /L (RSFLOI)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7.04	9.47	3.15	0	7.31	0	0	31.3	0	45.9	0.0	18.9	18.1	
KG /DAY (RSP)	REQUIREMENT	35.6	33.9	31.4	40.8	43.6	42.6	41.3	49.5	39.9	38.6	45.6	36.4	39.9	0
RESIDUE TOTAL	ACTUAL	1411	1173	1024	1243	1231	1258	936	1623	1013	827	1852	1400	1249	
KG /DAY (RST)	GUIDELINE														
VINYL CHLORIDE	ACTUAL	0.1	0.16	0.13	0.07	0.05	0.01	0.03	0.04	0.14	0.16	0.23	1.21	0.19	
KG /DAY (X1VCL)	REQUIREMENT	2.38	2.26	2.09	2.72	2.91	2.84	2.75	3.3	2.66	2.67	3.03	2.43	2.67	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000037-03-0(4)　B.F. GOODRICH CANADA INC.　NIAGARA FALLS　REPORT DATE: 14 MAR 91

CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	18	16	13	16	12	16	23	32	37				20.3	
KG /DAY (BOD5)	REQUIREMENT														
CHEM. OX DEMAND	ACTUAL	28.98	25.98	19.76	16.45	7.52	11.22	8.18	51.28	27.18	25.61	22.32	42.18	23.89	
MG/L (COD)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	2.21	0.58	0.22	0.72	0	0.06	1.16	1.71	2.66	0.07	0.52	0	0.83	
KG /DAY (NNH4FR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.06	0.1	0.14	0	0	0.25	0	0.23	0.13	0.67	0.25	0.24	0.17	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE FILTERED	ACTUAL	15.11	4.04	5.49	5.01	0.02	3.57	1.56	4.7	0	0.51	6.57	10.35	4.74	
MG /L (RSFLOI)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7.04	9.47	3.15	0	7.31	0	0	31.3	0	45.9	87.6	64.5	21.36	
KG /DAY (RSP)	REQUIREMENT														
RESIDUE TOTAL	ACTUAL	1411	1173	1024	1243	1231	1258	936	1623	1013				1212	
KG /DAY (RST)	GUIDELINE														
VINYL CHLORIDE	ACTUAL	0.1	0.16	0.13	0.07	0.05	0.01	0.03	0.04	0.14	0.16	0.23	1.21	0.19	
KG /DAY (X1VCL)	REQUIREMENT														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA GROSS DATA, EXCEPTIONS NOTED BELOW

GROSS IMIS DATA JAN TO SEPT, MISA GROSS DATA OCT TO DEC

BOD5, RST NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Boise Cascade Canada Ltd.
& PLANT LOCATION: Fort Frances
IMIS NO.: 0000870105

MOE REGION: Northwest
DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Rainy River.
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Mainly softwood (black spruce, jack pine and balsam fir) logs and chips are converted into bleached kraft pulp and groundwood paper specialties. Crude tall oil is also produced.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, paper) and trace amounts of organics including chlorinated compounds

EFFLUENT TREATMENT: Groundwood wet room effluent is treated by screens and clarifier to remove solids. Paper machine effluents are treated by disc filter Saveall for fibre recovery and a clarifier for solids removal. The total mill effluent (kraft plus paper clarifier) is then treated through a settling basin for further solids removal, followed by an aeration lagoon for the biological removal of oxygen demanding substances.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: Control Order (EFFECTIVE DATE): issued October, 1989, superceding Certificate of Approval No. 4-012-82-869, established limits for TSS and BOD5. BOD_5 (14,000 kg/day in winter and 12,000 kg/day in summer) and suspended Solids (12.000 kg/day) limits are 30 day running averages.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: The Ministry cf the Environment conducted 8 trout bioassays at three contract laboratories in 1989. The results indicated that the percentage effluent required to kill 50% of the fish by the end of four days exposure ranged from 27.6% to 100%. Data reported from the company on five bioassays for the same period (1989) ranged from 13% to 70%.

02/27/91

000087-01-0(5)   BOISE-CASCADE CANADA LTD.   FORT FRANCES   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	70800	70600	65700	68000	67800	68900	74900	73300	69500	69000	72100	76700	70608	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	12400	11900	10000	9300	10400	11400	8100	8500	8300	9300	8300	10700	9883	
KG /DAY (BOD5)	REQUIREMENT	15000	15000	15000	15000	15000	13000	13000	13000	13000	13000	14000	14000	14000	0
RESIDUE PARTIC.	ACTUAL	4900	4300	3800	3800	4500	4500	4900	5300	6000	8300	9000	8200	5625	
KG /DAY (RSP)	REQUIREMENT	7500	7500	7500	7500	7500	7500	7500	7500	7500	12000	12000	12000	8625	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Boise Cascade Canada Ltd.
& PLANT LOCATION: Kenora
IMIS NO.: 0000870006

MOE REGION: Northwest
DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill
SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Winnipeg R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (jack pine, black spruce) logs are made into newsprint through sulphite and stone groundwood pulping.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, paper, wood) and a variety of organic compounds.

EFFLUENT TREATMENT: A large clarifier removes solids from the paper machine room and sulphite high-solids wastewaters. Two large screens remove solids from low-solids wastewaters at the paper machines, sulphite blow pit washings and stone groundwood bearing water.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-096-84-877, issued in 1987, restricts BOD5 loadings to less than 35,000 kg/day and suspended solids (RSP) loadings to less than 4,500 kg/day, both based on 30 day running averages. No. 4-0048-89-006, issued in May 1989 continues limits outlined above after construction of a new 450 TPD thermo-mechanical pulp (TMP)mill in 1990. TMP Mill construction postponed due to economic considerations.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: In 1989, six trout bioassays indicated the final effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.7% to 11.3%.

11/05/90

000087-00-0(6) BOISE-CASCADE CANADA LTD. KENORA REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	42900	39500	36300	41100	42700	47100	52900	56000	51700	47900	50900	44800	46150	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	21600	21600	15700	24600	24700	26800	23800	25400	25200	29800	30400	24000	24467	
KG /DAY (BOD5)	REQUIREMENT	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	0
RESIDUE PARTIC.	ACTUAL	3400	3100	2700	3360	3350	3600	3030	3500	3630	3340	4300	3430	3395	
KG /DAY (RSP)	REQUIREMENT	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	0

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Bond Gold Canada Ltd.
& PLANT LOCATION: Muskeg Lake
Kenora District

IMIS NO.: 0122040009

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE:

RECEIVING WATERBODY: DIRECT: Hour Lake
INDIRECT: Attawapiskat River

DESCRIPTION OF ACTIVITY: Gold Mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewater when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularily cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-0065-87-886, issued August 5,1988, limits discharge concentrations of arsenic,cyanide,copper, nickel, zinc and lead.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None.

COMMENTS:

11/08/90

012204-00-0(9) BOND GOLD - GOLDEN PATRICIA SIOUX LOOKOUT REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	0	0	0	0	0	0	0	0	6700	1900	600	90	2322.5	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL									1	1	1	1	1	
UG/L (ASUT)	REQUIREMENT									500	500	500	500	500	0
CYANIDE AVAIL	ACTUAL									0.09	0.39	0.19	0.37	0.26	
MG/L AS HCN	REQUIREMENT									2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL									5	30	5	8	12	
UG/L (CUUT)	REQUIREMENT									1000	1000	1000	1000	1000	0
NICKEL UNF.TOT.	ACTUAL									5	6	5	5	5.25	
UG/L (NIUT)	REQUIREMENT									1000	1000	1000	1000	1000	0
LEAD UNF.TOT.	ACTUAL									10	10	20	10	12.5	
UG/L (PBUT)	REQUIREMENT									1000	1000	1000	1000	1000	0
PH	ACTUAL									7.14	7.42	7.51	7.12	7.3	
(PH)	REQUIREMENT														0
ZINC UNF.TOT.	ACTUAL									5	20	5	10	10	
UG/L (ZNUT)	REQUIREMENT									1000	1000	1000	1000	1000	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 28, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: BTL Specialty Resins.
& PLANT LOCATION: Belleville

IMIS NO.: 0001860006

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Bay of Quinte
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Formaldehyde and hexamethylene tetramine produced on site are used to make phenol and formaldehyde resins.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Phenols - 20 ug/L from 'Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)'.

EXCEEDANCES: Seven exceedances of phenol on a monthly basis.

REMEDIAL ACTIONS: Decommissioning of plant throughout 1990.

COMMENTS: Discharge consists of cooling water and surface runoff.
- Hexamine Plant shutdown in March 1989
- Formaldehayde Plant shutdown in June 1989
- BTL Specialty Resins ceased operation on March 31, 1990.
- Consultants have been hired and are presently preparing the site decommissioning workplan; hydrogeological component submitted and under review by MOE.
- Monitoring of east and west outfalls is continuing to monitor residual impacts from site runoff.

MISA Toxicity Results

Six trout bioassays in 1989, indicated that both combined effluent discharges (0100, 0200) to have been non-acutely lethal to test fish.

03/12/91

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000186-00-0(6)    BTL SPECIALTY RESINS (BELLEVILLE PLANT)          BELLEVILLE                                                         REPORT DATE: 5 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA                                                                                                ANNUAL     TOTAL
FLOW/LOADING         PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT #   NOV #   DEC # AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL            7269    7116    6488    5730    8049            4916    8302            1676    1021    1126    4699
M3 /DAY (FTFLOW)     GUIDELINE

PHENOLS UNF-REAC       ACTUAL           0.051    0.09    0.06    0.06   0.032            0.01    0.01           0.048   0.030   0.123   0.047
KG /DAY (PHNOL )     GUIDELINE          0.145   0.142   0.130   0.115   0.161           0.098   0.166           0.034   0.020   0.023   0.094          3

NOTE: S/C -SEE COMMENT,  O* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS - ,    # - MISA DATA, EXCEPTIONS NOTED BELOW
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 70% IN 1989.

000186-00-0(6)    BTL SPECIALTY RESINS (BELLEVILLE PLANT)          BELLEVILLE                                                         REPORT DATE: 5 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA                                                                                                ANNUAL     TOTAL
FLOW/LOADING         PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT #   NOV #   DEC # AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL            2314    2167    1504    3419    7645    7879    4669   10056             776     716     670    3801
M3 /DAY (FTFLOW)     GUIDELINE

PHENOLS UNF-REAC       ACTUAL            0.06    0.04    0.03    0.03    0.12   0.039    0.02    0.03           0.048   0.030   0.123   0.052
KG /DAY (PHNOL )     GUIDELINE          0.046   0.043   0.030   0.068   0.153   0.158   0.093   0.201           0.016   0.014   0.013   0.076          4

NOTE: S/C -SEE COMMENT,  O* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS - ,    # - MISA DATA, EXCEPTIONS NOTED BELOW
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 64% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: CAMECO
& PLANT LOCATION: Blind River

IMIS NO.: 0000820308

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Mississagi R. mouth
INDIRECT: North Channel (Lake Huron)

DESCRIPTION OF ACTIVITY: Uranium is refined using concentrated nitric acid solvent , extraction and evaporation/decomposition of the nitrate to the oxide by the addition of heat.

EFFLUENT CHARACTERISTICS: Effluent contains nitrates, uranium and phosphorus.

EFFLUENT TREATMENT: Holding ponds.

DISCHARGE TYPE: Batch

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Under AECB licence requirements.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

01/23/91

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000082-03-0(8)    CAMECO A CANADIAN MINING/ENERGY CORP.            BLIND RIVER                                                              REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                                  ANNUAL     TOTAL
FLOW/LOADING         PARAMETERS          JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC   AVERAGE EXCEEDANCES

NH3-N FIL.REAC        ACTUAL                                                                                                                 39        39
KG /DAY (NNH3FR)    GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
******************************************************************************************************************************************************************


000082-03-0(8)    CAMECO A CANADIAN MINING/ENERGY CORP.            BLIND RIVER                                                              REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                                  ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS            JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC   AVERAGE EXCEEDANCES

FLOW                  ACTUAL             661       406       542       711       715       837                 340       560       415       513       172       534
M3 /DAY (FTFLOW)    GUIDELINE

NO3-N UNF.REAC        ACTUAL              24        28        27        33        39        55                  17        37        19        42                 32.1
MG/L (NNO3UR)      REQUIREMENT          1000      1000      1000      1000      1000      1000                1000      1000      1000      1000                1000          0

PH                    ACTUAL             7.8       7.9       7.7       7.7       8.1       7.7                 8.1       7.8       7.7         8      8.05      7.87
(PH )              REQUIREMENT                                                                                                                                            0

URANIUM UNF.TOT.      ACTUAL            0.14      0.05      0.08      0.08      0.02      0.05                0.11      0.05      0.05      0.05      0.07     0.068
MG/L (UUUT )        GUIDELINE             20        20        20        20        20        20                  20        20        20        20        20        20          0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
******************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  32, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	CAMECO Port Granby	IMIS NO.: 0000820209
MOE REGION:	Central	DISTRICT: Peterborough
INDUSTRIAL SECTOR:	Metal Mining, Smelting, Refining	SIC CODE: 295
RECEIVING WATERBODY:	DIRECT: Lake Ontario INDIRECT:	

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Leachate from the site is collected in two ponds. Leachate is chemically treated for radium removal. Precipitated radium is settled out in ponds, and the treated effluent is discharged to Lake Ontario together with offsite groundwater intercepted at the periphery of the site.

DISCHARGE TYPE: Batch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Effluent quality limits are set in AECB operating licence.

EXCEEDANCES: pH (1), arsenic (12), sulphate(11)

REMEDIAL ACTIONS: Modifications to treatment plant operation and evaluation of discharge effects on Lake Ontario were completed. Site is scheduled for decommissioning when Federal Government Task Force identifies new site for receiving waste. Following new ite commissioning all waste in Port Granby site will be removed.

COMMENTS: Arsenic concentration limit is under review by AECB/MOE. Reported data are the concentrations of specific parameters from control points 0100 and 0200. Control point 0100 is used for determining the operating efficiencies of the treatment lagoon. Control point 0200 is used for compliance assessment for licensed limits.

03/12/91

000082-02-0(9) CAMECO (PORT GRANBY)
CONTROL POINT: 0100 DATA FOR 1989

REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	83	76	67	131	83	68	57	25	61	81	89	92	76.1	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.11	7.66	8.33	8.81	9.71	8.91	8.31	8.21	8.21	8.1	8.16	7.96	8.37	
(PH)	REQUIREMENT														1
ARSENIC UNF.TOT.	ACTUAL	0.22	0.15	0.13	0.183	0.12	0.12	0.1	0.05	0.12	0.15	0.14	0.17	0.138	
KG /DAY (ASUT)	GUIDELINE	0.042	0.038	0.034	0.066	0.042	0.034	0.029	0.013	0.031	0.041	0.045	0.046	0.038	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 46% IN 1989.

000082-02-0(9) CAMECO (PORT GRANBY)
CONTROL POINT: 0100 DATA FOR 1989

REPORT DATE: 28 FEB 91

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RADIUM 226 FIL.	ACTUAL	0.203	0.151	0.056	0.076	0.059	0.092	0.17	0.19	0.19	0.233	0.218	0.277	0.16	
BQ/L (RA226F)	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000082-02-0(9)   CAMECO (PORT GRANBY)
CONTROL POINT: 0200 DATA FOR 1989

REPORT DATE: 5 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	171	148	345	209	187	217	127	111	122	171	189	161	180	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.22	0.15	0.34	0.148	0.14	0.14	0.013	0.088	0.085	0.19	0.19	0.14	0.154	
KG /DAY (ASUT)	GUIDELINE	0.086	0.074	0.173	0.105	0.094	0.109	0.064	0.056	0.061	0.086	0.095	0.081	0.09	11
URANIUM UNF.TOT.	ACTUAL	0.12	0.1	0.2	0.123	0.1	0.15	0.053	0.11	0.11	0.19	0.16	0.11	0.127	
KG /DAY (UUUT)	GUIDELINE	0.513	0.444	1.04	0.627	0.561	0.651	0.381	0.333	0.366	0.513	0.567	0.483	0.54	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1989.

000082-02-0(9)   CAMECO (PORT GRANBY)
CONTROL POINT: 0200 DATA FOR 1989

REPORT DATE: 28 FEB 91

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RADIUM 226	ACTUAL	0.121	0.086	0.056	0.141	0.055	0.065	0.055	0.111	0.064	0.155	0.142	0.183	0.103	
BQ/L AS RA	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: CAMECO
& PLANT LOCATION: Port Hope

IMIS NO.: 0000820001

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Uranium trioxide (UO_3) is converted into uranium dioxide (UO_2) and uranium hexafluoride (UF_6) for use as fuel in the nuclear industry.

EFFLUENT CHARACTERISTICS: Cooling water may contain fluorides, uranium, ammonia plus nitrate.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Submerged cooling water pipes discharge continuously when plant is operating.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Atomic Energy Canada Limited Licence Limits. (Federal)

EXCEEDANCES: Yes. (2) exceedances on NH3-N

REMEDIAL ACTIONS: None required

COMMENTS: Exceedance of NH3-N in January, 1989 was due to a documented spill of ammonium hydroxide from cooling water heat exchange loop. No process upsets occured in April 1989, however, high background levels of NH3 were measured in the intake water at this time. No flow measurements available - estimates only. Reported data are the concentration of specific parameters from control point 0200 and 0300. Control point 0200 is used as compliance assessment for licensed limits.

Plant is subject to MISA, industrial mining and refining sector.

03/14/91

000082-00-0(1)   CAMECO A CANADIAN MINING/ENERGY CORP.   PORT HOPE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLUORIDE UNF.TOT.	ACTUAL	0.25	0.25	0.26	0.34	0.3	0.3	0.3	0.25	0.25	0.25	0.26	0.25	0.272	
MG/L AS F (FFIDUT)	GUIDELINE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0
NH3-N TOTAL	ACTUAL	1.06	0.15	0.44	0.65	0.16	0.1	0.1	0.1	0.1	0.39	0.18	0.14	0.298	
MG/L AS N (NNHTUR)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2
NO2+NO3N UNF.REAC	ACTUAL	1.87	2.7	2.03	2.28	2.2	1.53	2	1.2	1.2	1.23	1.65	2.45	1.86	
MG/L AS N (NNOTUR)	GUIDELINE	25	25	25	25	25	25	25	25	25	25	25	25	25	0
URANIUM UNF.TOT.	ACTUAL	0.04	0.05	0.11	0.03	0.05	0.02	0.01	0.03	0.01	0.08	0.04	0.05	0.043	
UG/L (UUUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

000082-00-0(1)   CAMECO A CANADIAN MINING/ENERGY CORP.   PORT HOPE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLUORIDE UNF.TOT.	ACTUAL	0.22	0.26	0.35	0.36	0.33	0.34	0.31	0.27	0.24	0.27	0.24	0.26	0.288	
MG/L AS F (FFIDUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	1.55	0.13	0.31	0.1	0.1	0.13	0.1	0.15	0.1	0.11	0.1	0.14	0.252	
MG/L AS N (NNHTUR)	GUIDELINE														
NO2+NO3N UNF.REAC	ACTUAL	2.55	2.78	2.52	2.73	2.32	1.33	3.9	1.51	1.1	1.25	1.75	2.53	2.19	
MG/L AS N (NNOTUR)	GUIDELINE														
URANIUM UNF.TOT.	ACTUAL	0.05	0.05	0.11	0.07	0.11	0.04	0.05	0.07	0.05	0.09	0.12	0.1	0.076	
UG/L (UUUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: CAMECO
& PLANT LOCATION: Welcome Waste Site

IMIS NO.: 0000820100

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Chemical precipitation

DISCHARGE TYPE: continuous submerged

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Effluent quality limits are set in AECB operating licence.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Decommissioning of the site is indefinite. Collection ponds re-constructed in 1986 to improve arsenic treatment.

03/21/91

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000082-01-0(0)    CAMECO (WELCOME)                               PORT HOPE                                                    REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                     ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL            225      162      190      476      255      243       66       55      114      253      336      254      219
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL           7.33      6.8     7.34     7.92     7.91     8.04     8.19     7.96     7.96     7.95     7.81     7.62     7.74
(PH )               REQUIREMENT                                                                                                                           0

ARSENIC UNF.TOT.      ACTUAL          0.002    0.005   0.0019    0.024     0.01     0.02    0.014    0.002     0.04     0.04     0.01     0.01    0.015
KG /DAY (ASUT )     GUIDELINE         0.113    0.081    0.095    0.238    0.128    0.122    0.033    0.028    0.057    0.127    0.168    0.127     0.11        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
***************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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000082-01-0(0)    CAMECO (WELCOME)                               PORT HOPE                                                    REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                     ANNUAL    TOTAL
FLOW/CONCENTRATION PARAMETERS           JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL            225      162      190      476      255      243       66       55      114      253      336      254      219
M3 /DAY (FTFLOW)    GUIDELINE

RADIUM 226 FIL.       ACTUAL          0.064     0.06     0.07     0.06    0.055    0.055     0.06    0.056    0.055    0.055    0.055    0.055    0.058
BQ/L (RA226F)       GUIDELINE          0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37     0.37        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
***************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Campbell Soup Co. Ltd. Blanshard Township, Perth County	IMIS NO.: 0000970004
MOE REGION:	Southwest	DISTRICT: London
INDUSTRIAL SECTOR:	Food and beverage	SIC CODE: 101
RECEIVING WATERBODY:	DIRECT: 248 km from Thames R. North Branch INDIRECT:	

DESCRIPTION OF ACTIVITY: Poultry processing

EFFLUENT CHARACTERISTICS: Contains suspended solids, phosphorus and biodegradable organics.

EFFLUENT TREATMENT: Activated sludge treatment works with diffused outfall to river, sludge storage and irrigation on company land

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : Yes.

EXCEEDANCES: Yes. Company was in non-compliance for BOD5 8 times; suspended solids (RSP) 7 times, and flow twice.

REMEDIAL ACTIONS: In June,1989 a consultant was retained to review existing plant operational procedures and to make any necessary operational/process and equipment changes to upgrade the effluent discharge to compliance standards. Several operational changes effected late in 1989 have in 1990 resulted in significant improvements in effluent quality.

COMMENTS:

01/23/91

000097-00-0(4)   CAMPBELL SOUP COMPANY LTD   PO BOX 1180 ST MARYS   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	494	573	540	550	600	585	608	498	527	543	619	584	560	
M3 /DAY (FTFLOW)	GUIDELINE	600	600	600	600	600	600	600	600	600	600	600	600	600	2
PH	ACTUAL	7.6	7.7	7.5	7.5	7.6	7.7	8	7.4	7.9	7.4	7.2	7.2	7.56	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	60	52	78	129	138	103	26	31	31	78	18	75	68.3	
KG /DAY (BOD5)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	8
PO4 FIL.REAC	ACTUAL	0.5	0.6	0.7	0.8	0.9	0.9	0.7	5.7	8	15	13	2.5	4.11	
KG /DAY (PPO4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	55	62	122	114	113	86	30	24	22	46	44	62	65	
KG /DAY (RSP)	REQUIREMENT	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	7
RESIDUE TOTAL	ACTUAL	1169	1274	1281	1537	1468	1373	1278	949	1252	1367	1274	1259	1290	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 65% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Campbell's Wellington Mushroom Farm
& PLANT LOCATION: Hallowell Twp.

IMIS NO.: 0000970400

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY: DIRECT: unnamed creek.
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Growing of mushrooms.

EFFLUENT CHARACTERISTICS: Contains suspended solids (RSP), biodegradable organics (BOD5) and phosphorus (PPUT).

EFFLUENT TREATMENT: Package mechanical treatment plant with effluent filtration followed by polishing lagoon.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-049-72-006 dated May 15, 1972 contains no effluent quality objectives for BOD5 or suspended solids.

MOE OR FEDERAL GUIDELINES: Operational objectives for BOD5 or suspended solids (RSP) 25 based on treatment (mechanical plant with chemical addition for phosphorus removal) are BOD5- 25 mg/L; Suspended Solids (RSP) is- 25 mg/L assessed on an annual average. Total phosphorus (PPUT) - 1mg/L assessed on a monthly average.

EXCEEDANCES: Yes. PPUT two of twelve months.

REMEDIAL ACTIONS: Equipment for addition of chemical (alum) for phosphorus removal required manual adjustment. Effluent quality compliance achieved last seven months of 1989.

COMMENTS:

117/26/90

000097-04-0(0) CAMPBELL'S WELLINGTON MUSHROOM FARM WELLINGTON REPORT DATE: 20 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	186	186	186	186	186	182	186	174	175	186	186	186	184	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1.21	2.52	2.98	2.65	3.67	2.1	2.74	1.83	1.89	1.77	2.38	1.98	2.31	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
PHOSPHOR UNF.TOT.	ACTUAL	0.13	0.07	0.37	0.19	0.06	0.07	0.06	0.024	0.05	0.026	0.073	0.116	0.103	
KG /DAY (PPUT)	REQUIREMENT	0.186	0.186	0.186	0.186	0.186	0.182	0.186	0.174	0.175	0.186	0.186	0.186	0.184	2
RESIDUE PARTIC.	ACTUAL	4.1	2.8	11.74	7.32	6.47	3	2.6	2.49	2.1	2.94	2.42	3.82	4	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Canadian Canners Ltd. St. Davids	IMIS NO.: 0001930007
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Food and Beverage	SIC CODE: 102
RECEIVING WATERBODY:	DIRECT: Four Mile Creek INDIRECT: 12 km to Lake Ontario	

DESCRIPTION OF ACTIVITY: Food processor

EFFLUENT CHARACTERISTICS: Contains Total Suspended Solids and Organics.

EFFLUENT TREATMENT: Facultative lagoon.

DISCHARGE TYPE: batch discharge usually in fall of year

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives set by the Control of Wastewater Discharges In Ontario (lagoons).

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS:

03/08/91

000193-00-0(7) CANADIAN CANNERS LIMITED ST DAVIDS REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL														
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL			3.8	7.6	9.7								7.03	
KG /DAY (BOD5)	GUIDELINE			25	25	25								25	0
PHOSPHOR UNF.TOT.	ACTUAL			0.19	0.38	0.12								0.23	
KG /DAY (PPUT)	GUIDELINE			1	1	1								1	0
RESIDUE PARTIC.	ACTUAL			5.7	11.4	18.3								11.8	
KG /DAY (RSP)	GUIDELINE			25	25	25								25	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Canadian Oxy Chemicals Ltd.
(previously reported as Canadian Oxy-Durez)
& PLANT LOCATION: Fort Erie

IMIS NO.: 0001590009

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures phenol-formaldehyde resins.

EFFLUENT CHARACTERISTICS: Recycles waste water; cooling water discharge only.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Waste Discharges In Ontario.

EXCEEDANCES: Company has exceeded the phenol discharge guideline for six months.

REMEDIAL ACTIONS: Company completed voluntary program involving storm water treatment and process modification to achieve compliance with phenol discharge guideline in May, 1989. Company in compliance in 1990.

COMMENTS:

Toxicity results obtained under the MISA program are:

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the once through cooling water effluent to have been non-acutely lethal to test fish.

03/11/91

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000159-00-0(9)    CANADIANOXY CHEMICALS LTD.                     FORT ERIE                                                  REPORT DATE: 6 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                        ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS          JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP      OCT #     NOV #     DEC # AVERAGE  EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL         690146     298.7       414       363       350     293.4     694.2      80.4     34.09     20.05      60.9      87.9     57737
M3 /DAY (FTFLOW)    GUIDELINE

BOD 5 DAY             ACTUAL            0.9     0.273       0.7     0.566      0.47     0.487      1.27     0.199     0.021     0.678     0.306      0.13      0.50
KG /DAY (BOD5 )     GUIDELINE         10352      4.48      6.21      5.45      5.25       4.4      10.4      1.21     0.511     0.968     0.656       1.5       866        0

PHENOLS UNF-REAC      ACTUAL          0.022     0.008     0.011     0.005     0.014     0.002     0.004     0.001    0.0005     0.006     0.046     0.003     0.010
KG /DAY (PHNOL )    GUIDELINE          13.8     0.006     0.008     0.007     0.007     0.006     0.014     0.002     0.001     0.001     0.001     0.002      1.15        6

PHOSPHOR UNF.TOT.     ACTUAL              0         0         0         0         0         0     0.008     0.001   0.00005     0.019     0.001     0.001     0.003
KG /DAY (PPUT )     GUIDELINE           690     0.299     0.414     0.363      0.35     0.293     0.694      0.08     0.034     0.065     0.044       0.1      57.7        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS   -    ,     # - MISA DATA, EXCEPTIONS NOTED BELOW
**************************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1989.

REPORTED VALUES FOR BOD5 FOR OCT TO DEC NOT MONITORED UNDER MISA MONITORING REGULATION

VALUES FOR PHENOL FOR OCT TO DEC, AND PPUT FOR OCT ARE BASED ON ONE SINGLE RESULT
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Canadian Pacific Forest Products Limited, Dryden

IMIS NO.: 0000840108

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Wabigoon River
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Kraft bleached pulp and uncoated fine papers are made from softwoods (jack pine, black spruce).

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper fines etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: No solids from the dry woodroom (debarking). Use of a continuous digester and enclosed diffusion washers results in few spills with much less solids and dissolved organics in wastewaters from the processes. Foul condensates are steam stripped to remove odourous organic compounds. Total effluent is treated by a clarifier prior to biological treatment (aeration lagoon), stabilization basin and a foam barrier.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMPANY LIMITS SET BY: Control Order (EFFECTIVE DATE): issued in October, 1989 , superceding Certificate of Approval No 4-0168-87-886 established limits for BOD5 and TSS. BOD5 (5,000kg/day) and Suspended Solids (7,500 kg/day), limits are 30 day running averages.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Increases in flow noted in June, 1989, due to start-up of a new additional 400 tpd fine paper machine.

The Ministry of the Environment conducted 7 trout bioassays at three contract laboratories in 1989. Statistically, the percentage effluent required to kill 50% of the test fish by the end of four days exposure ranged from 27% to >non-lethal. Data reported from the company on bioassays for the same period ranged from 46% to >100%.

02/27/91

000084-01-0(8) CANADIAN PACIFIC FOREST PRODUCTS LIMITED DRYDEN REPORT DATE: 28 FEB 91

CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	70000	71000	72000	70000	84000	99000	106000	110000	87000	98000	93000	94000	87833	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2500	2400	2500	1800	2800	2900	3500	3500	2100	3000	2600	2700	2690	
KG /DAY (BOD5)	REQUIREMENT										5000	5000	5000		0
RESIDUE PARTIC.	ACTUAL	3400	5000	4700	3600	5000	4900	5000	5000	3200	6200	3900	4300	4517	
KG /DAY (RSP)	REQUIREMENT	5600	5600	5600	5600	5600	5600	5600	5600	5600	7500	7500	7500	6075	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 15, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Canadian Pacific Forest Products Limited, Thunder Bay

IMIS NO.: 0000840009

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 9 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Newsprint and kraft pulp are made from logs and chips, mainly softwoods (Black spruce, Jack pine Balsam fir etc.) and some Poplar, by the kraft, stone groundwood and sulphite pulping processes. The kraft pulp is bleached. Crude tall oil is recovered and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: Several clarifiers in the newsmill, the kraft mills and neutral fiber kraft (clarification with pH adjustment). Bisulphite liquor is cross recovered. Modern closed cycle process used in "B" kraft Mill. Foul condensates are treated in-mill by steam stripping.

DISCHARGE TYPE: Continuous through a submerged diffuser with a separate clean cooling water discharge.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Suspended solids (RSP) 25 tonne/day (Dec. 31, 1990)

MOE OR FEDERAL GUIDELINES: MOE phosphorus guideline of 1 mg/l.

BOD Daily Max	70.0 tonne
BOD 30 Day Avg	55.0 tonne
TSS Daily Max	25.0 tonne
TSS 30 Day Avg	15.0 tonne

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: New Control Order issued Oct 23/89. New Secondary Treatment Plant is being designed. Secondary treatment plant effluent is expected to be non-lethal when the new plant is fully operational. Loading limits are to be further reduce as per control order by Dec. 31/91.

Six trout bioassays in 1989 indicated the Clean and Combined effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 33.1% to 73.7%.

01/11/91

000084-00-0(9) CANADIAN PACIFIC FOREST PRODUCTS LIMITED THUNDER BAY REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	180000	190000	180000	180000	190000	210000	230000	240000	220000	220000	210000	210000	205000	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	40000	46000	49000	48000	48000	50000	48000	47000	45000	53000	52000	50000	48000	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
PHOSPHOR UNF.TOT.	ACTUAL	166.4	141	164.1	143.3	94.6	165.8	167.6	168.7	143.6	165.5	139.8		138.4	
KG /DAY (PPUT)	GUIDELINE	180	190	180	180	190	210	230	240	220	220	210		188	0
RESIDUE PARTIC.	ACTUAL	9000	9000	12000	8000	12000	12000	11000	13000	12000	13000	13000	12000	11333	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Canamax Ltd.
Bell Creek Mine
Porcupine

IMIS NO.: 0046950002

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Bell Creek to Porcupine stream.
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold ore is mined and milled to separate into gold concentrates and tailings (cyanidation/zinc precipitation)

EFFLUENT CHARACTERISTICS: Contains cyanides, dissolved metals, copper, lead, zinc, nickel and suspended solids.

EFFLUENT TREATMENT: 2 stage tailings management system.

DISCHARGE TYPE: Seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL: MAY 14, 1985:

EXCEEDANCES: yes. Cyanide (1).

REMEDIAL ACTIONS: The company applied for and obtained approval for an improved 3 stage tailings management system along with increased mill recirculation in 1989. Construction was completed in 1990. Cyanide results were in compliance in 1990.

COMMENTS: The treatment system utilizes natural degradation and settling and discharge on a seasonal basis. An emergency discharge was experienced in late April which resulted in slight exceedances of total metals and cyanide for May 1989.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/12/91

004695-00-0(2) BELL CREEK MINE (CANAMAX) PORCUPINE REPORT DATE: 14 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL									0.11	0.07			0.09	
MG/L AS AS	GUIDELINE									0.5	0.5			0.5	0
CYANIDE AVAIL	ACTUAL				0.466	2.35				0.164	0.096			0.769	
MG/L AS HCN	GUIDELINE				2	2				2	2			2	1
COPPER UNF.TOT.	ACTUAL					0.74				0.11	0.182			0.344	
MG/L AS CU	GUIDELINE					1				1	1			1	0
IRON UNF.TOT.	ACTUAL				0.76	1.47			0.38	0.45	0.44			0.7	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL				0.16				0.12	0.112	0.128			0.13	
MG/L AS NI	GUIDELINE				1				1	1	1			1	0
NH3-N FIL.REAC	ACTUAL				7.41	2.96			3.2		2.8			4.09	
MG/L (NNH3FR)	GUIDELINE				10	10			10		10			10	0
LEAD UNF.TOT.	ACTUAL				0.02	0.03				0.023	0.007			0.02	
MG/L AS PB	GUIDELINE				1	1				1	1			1	0
PH	ACTUAL				7.93	6.98				7.56	7.96			7.61	0
RESIDUE PARTIC.	ACTUAL				4	15				13	6			9.5	
MG/L (RSP)	GUIDELINE				15	15				15	15			15	0
RESIDUE TOTAL	ACTUAL				332	300				302	360			324	
MG/L (RST)	GUIDELINE														
MG/L	ACTUAL									140	93			117	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL				0.51	0.85				0.178	0.553			0.518	
MG/L AS ZN	GUIDELINE				1	1				1	1			1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 38, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: CASCO Company
& PLANT LOCATION: 800 James Street
Cardinal

IMIS NO.: 0001720002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 106, 1083, 1089

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Wet milling and oil refining processes

EFFLUENT CHARACTERISTICS: Contains soluble organics, insoluble organics and phosphorus.

EFFLUENT TREATMENT: Aerated cell.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Requirement and Direction served on February 24, 1987 with requirements of 25 mg/L for BOD5 and Suspended Solids, and 1 mg/L for phosphorus commencing on January 01, 1989.

EXCEEDANCES: Yes. A total of sixteen monthly exceedances for BOD5 and three monthly exceedances of RSP for all three outfalls .

REMEDIAL ACTIONS: Plant has modified its process and industrial waste collection system. Plant is in compliance in 1990.

COMMENTS:

03/12/91

000172-00-0(2) CASCO COMPANY
CONTROL POINT: 0100 DATA FOR 1989

CARDINAL

REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1400	1600	4000	3500	4400	6000	6600	9100	8200	6100	6800	5100	5233	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.65	7	7.5	7.35	7.3	7.4	7.5	7.5	7.3	7.4	7.5	7.41	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	21.5	16.2	84	311	515	335	38.8	413	426	280	748	235	285	
KG /DAY (BOD5)	REQUIREMENT	35	40	100	88	110	150	165	228	205	153	170	128	131	8
CHEM. OX DEMAND	ACTUAL	79	46	356	1227	1751	1141	807	1406	1575	1000	2536	934	1072	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	0.13	0.22	0.9	0.35	0.5	0.71	1.1	0.09	0.05	0.08	0.175	0.27	0.38	
KG /DAY (PPUT)	REQUIREMENT	1.4	1.6	4	3.5	4.4	6	6.6	9.1	8.2	6.1	6.8	5.1	5.23	0
RESIDUE PARTIC.	ACTUAL	8.3	8	30	20	30.5	22.7	48	47.7	42	29	31	39	29.7	
KG /DAY (RSP)	REQUIREMENT	35	40	100	87.5	110	150	165	227.5	205	152.5	170	127.5	130.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 0 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1989.

000172-00-0(2) CASCO COMPANY
CONTROL POINT: 0200 DATA FOR 1989

CARDINAL

REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4700	4400	4200	5500	6350	7700	10300	10300	8700	7000	7100	5700	6829	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.35	7.85	7.5	7.4	7.65	7.3	7.5	7.4	7.4	7.2	7.4	7.6	7.46	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	14	7.1	38	35	54	72.9	42.3	53.2	104	84	43.3	29	48.1	
KG /DAY (BOD5)	REQUIREMENT	117.5	110	105	137.5	158.75	192.5	257.5	257.5	217.5	175	177.5	142.5	170.7	0
CHEM. OX DEMAND	ACTUAL	48	24	134	121	182	276	144	181	226	250	162	87	153	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	1.4	0.95	0.8	0.4	1.7	6.2	1.25	1.98	3	0.83	1.3	1.1	1.7	
KG /DAY (PPUT)	REQUIREMENT	4.7	4.4	4.2	5.5	6.35	7.7	10.3	10.3	8.7	7	7.1	5.7	6.8	0
RESIDUE PARTIC.	ACTUAL	35	33	49	36	64	67	77	75.7	97	91	42	52	59.9	
KG /DAY (RSP)	REQUIREMENT	117.5	110	105	137.5	158.75	192.5	257.5	257.5	217.5	175	177.5	142.5	170.7	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 0 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000172-00-0(2) CASCO COMPANY CARDINAL REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9800	10400	9000	5600	6000	12400	13800	7100	14100	7300	7500	6100	9092	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.55	7.75	7.6	7.4	7.2	7.2	7.4	7.4	7.4	7.4	7.5	7.5	7.44	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	97	382	540	162	758	712.5	497	184	169	124	210	153	332	
KG /DAY (BOD5)	REQUIREMENT	245	260	225	140	150	310	345	178	353	183	188	153	227	8
CHEM. OX DEMAND	ACTUAL	2368	1300	1739	565	2577	2394	1691	627	591	607	705	449	1301	
KG /DAY (CODF)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	4.9	5.3	7	1.3	2.2	5.6	1.6	0.875	0.9	0.4	1	1	2.67	
KG /DAY (PPUT)	REQUIREMENT	9.8	10.4	9	5.6	6	12.4	13.8	7.1	14.1	7.3	7.5	6.1	9.09	0
RESIDUE PARTIC.	ACTUAL	402	164	282	81	86	325	253	165	128	112	89	74	180	
KG /DAY (RSP)	REQUIREMENT	245	260	225	140	150	310	345	178	353	183	188	153	227	3

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 0 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 77% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Celanese Canada Ltd. Millhaven

IMIS NO.: 0001730001

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 1811

RECEIVING WATERBODY: **DIRECT:** Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Yarns are made from polyester fibre produced by the reaction of ethylene glycol and terephthalic acid

EFFLUENT CHARACTERISTICS: Effluent contains organics which are measured by the BOD and COD tests.

EFFLUENT TREATMENT: Secondary activated sludge for process and sanitary wastewater.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE):** Water quality based total COD loading to Lake Ontario is limited to 1200 lbs (544 kg) per day as established in November 1975 Requirement and Direction.

MOE OR FEDERAL GUIDELINES: Effluent objectives for process and sanitary wastewater treatment plant set out in Certificate of Approval # 4-006-86-006 dated June 16, 1986 for BOD at 30 mg/L and COD at 60 mg/L.
NOTE: The wastewater treatment plant's effluent quality objectives cannot be applied directly to the discharge being reported in IMIS since the effluent is mixed with cooling water prior to discharge.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: If the C. of A quality objectives were applied to this direct discharge, exceedances would have occurred in July and August for both BOD5 and COD. Effluent quality deteriorated during these 2 months as a result of shut-down for maintenance over the summer. Wastewater Treatment Plant acclimatized to influent glycol levels which are not present during the summer shut-down.

MISA Toxicity Results

Twelve trout bioassays in 1989, indicated that all three combined effluent discharges (0100, 0200, 0300) to have been non- acutely lethal to test fish.

03/12/91

000173-00-0(1)   CELANESE CANADA INC.   KINSTON   REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8470	7322	7272	7710	7434	12387	11827	8593	14155	12482	11094	8515	9772	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	45	122	100	100	66.9	51	76	42	110	171	132	135	95.9	
KG /DAY (BOD5)	REQUIREMENT	254	219	218	231	223	371	354	257	425	362	333	255	292	0
CHEM. OX DEMAND	ACTUAL	89	243	201	200	134	101	152	84	219	341	259	359	199	
KG /DAY (COD)	REQUIREMENT	508	439	436	463	446	743	709	515	849	724	665	510	584	0
RESIDUE PARTIC.	ACTUAL	38	63	54	47	53	23	19	43	78	72	71	56	51	
KG /DAY (RSP)	REQUIREMENT	212	183	182	193	186	310	296	215	354	312	277	213	244	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # MISA DATA, EXCEPTIONS NOTED BELOW

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

REPORTED VALUES FOR BOD5, COD NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Champlain Industries Ltd.
& PLANT LOCATION: Tara

IMIS NO.: 0001000108

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Sauble R.
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Whey is made into whey based products.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins.

EFFLUENT TREATMENT: Secondary. Oxidation ditch clarifier sludge irrigated onto company land

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

07/29/89

000100-01-0(8)   CHAMPLAIN INDUSTRIES LIMITED   TARA   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	36	38	43	26	29	38	38	38	51	38	38		37.5	
M3 /DAY (FTFLOW)	REQUIREMENT	182	182	182	182	182	182	182	182	182	182	182		182	0
PH	ACTUAL	7.5		6.77	8.14	7.75	7.42	7.45	8	7.6	7.6	7.4		7.56	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.07		0.34	0.15	0.29	0.07	0.3	0.15	0.3	0.22	0.4		0.229	
KG /DAY (BOD5)	GUIDELINE	0.54		0.645	0.39	0.435	0.57	0.57	0.57	0.765	0.57	0.57		0.563	0
NH3-N TOTAL	ACTUAL	0.08		0.05	0.02	0.08	0.06	0.06	0.05	0.06	0.49	0.04		0.099	
KG /DAY (NNHTFR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0.63			0.09	0.51	0.44	1.78	0.3	0.65	0.45	0.06		0.546	
KG /DAY (RSP)	GUIDELINE	2.7			2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7		2.7	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 40, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Cornwall Chemicals Limited Cornwall	IMIS NO.: 0033050006
MOE REGION:	Southeast	DISTRICT: Cornwall
INDUSTRIAL SECTOR:	Organic Chemical Manufacturing	SIC CODE: 3712
RECEIVING WATERBODY:	DIRECT: St. Lawrence River INDIRECT:	

DESCRIPTION OF ACTIVITY: Manufactures carbon tetrachloride and carbon disulphide.

EFFLUENT CHARACTERISTICS: Contains small amounts of carbon tetrachloride and chloroform.

EFFLUENT TREATMENT: Primary pH adjustment and settling.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario guidelines for direct discharge of effluent.

EXCEEDANCES: Yes. Exceeded all twelve of the monthly target loads set for BOD .

REMEDIAL ACTIONS: Discussions have been ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence Remedial Action Plan (RAP). Further meetings are to be held to develop an interium reduction proposal.

COMMENTS: Company is part of MISA Organic Chemical Sector from which legally enforceable requirements for effluent will be set.

MISA Toxicity Results.

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure were 57.0 % and 80.6 %. The other sample was determined to have been non-acutely lethal.

03/13/91

003305-00-0(6) CORNWALL CHEMICALS LIMITED CORNWALL REPORT DATE: 29 JAN 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	710	825	819	648	522	671.7	804	690	552	500	657	752	679	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	127	158	121	128	134	107	125.7	94.5	18.6	30.2	28	56.9	94.1	
KG /DAY (BOD5)	GUIDELINE	17.8	20.6	20.5	16.2	13.1	16.8	20.1	17.3	13.8	12.5	16	18.8	17	12
CHEM. OX DEMAND	ACTUAL	140	167	79	126	110	104	113.3	106	49	18	47	61	93.4	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.23	0.11	0.25	0.07	0.07	0.25	0.34	0.55	0.12	0.08	0.08	0.10	0.19	
KG /DAY (PPUT)	GUIDELINE	0.71	0.825	0.819	0.648	0.522	0.672	0.804	0.69	0.552	0.5	0.657	0.752	0.679	0
RESIDUE FILTERED	ACTUAL	1323	3085	2060	2242	1617	1414	1318.2	1369	548	406	889	1330	1467	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7	7	20	8	3	3	6.8	4.8	5	4.3	8.8	5.1	6.9	
KG /DAY (RSP)	GUIDELINE	17.8	20.6	20.5	16.2	13.1	16.8	20.1	17.3	13.8	12.5	16.4	18.8	17.0	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1989.

REPORTED VALUES FOR BOD5, COD, RSF NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Courtaulds Fibres Canada and Courtaulds Films.
& PLANT LOCATION: Cornwall
IMIS NO.: 0001900000

MOE REGION: Southeast
DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemical Manufacturing
SIC CODE: 1829, 1631

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: At Courtaulds Fibres, dissolving sulphite pulp is reacted to form rayon. At Courtauld Films, viscose supplied by Courtaulds Fibres is made into cellulose film. The Courtaulds Films plant closed on September 20, 1989.

EFFLUENT CHARACTERISTICS: Contains waste acids, zinc and alkalis used in the process.

EFFLUENT TREATMENT: No external effluent treatment.

DISCHARGE TYPE: Continuous through diffusers.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): Guidelines are based on Courtaulds Fibres' expired Control Order and Courtaulds Films' existing Control Order.

EXCEEDANCES: Yes. All BOD5 targets set for these companies effluent discharge were exceeded. Compliance assessed on total plant discharge.

REMEDIAL ACTIONS: Strategies for a spill reduction program are being developed for Courtaulds Fibres. Requirements for the company's spill reduction actions will be established by a Control Order by the end of 1991. Courtaulds Films was shutdown in September 1989.

COMMENTS: Legally enforceable requirements for the effluent discharges will be set for Courtaulds Fibres by the MISA program.

Three trout bioassays conducted in 1989, indicated the acid, viscose and sulphide sewer effluents were acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 5.3 %, 80.6 % and 23.0 %

MISA Toxicity Results.

The data for eight trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated that both process effluents (100,300) to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 2.7 % to 61.0 %. The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated that all the combined effluent discharges (0500, 0600, 0700, 0800) to have been non- acutely lethal.

03/21/91

000190-00-0(0)   COURTAULDS FIBRES CANADA AND COURTAULDS FILMS   CORNWALL   REPORT DATE: 2 MAY 90
S U M M A R Y FOR EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/   ST. LAWRENCE R.
INCLUDES CONTROL POINTS: 0100 0200 0300 0400
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10865	11083	10921	11759	11950	12797	12893	13173	11462	9025	8886	7795	11051	
M3 /DAY (FTFLOW)	GUIDELINE														
ACIDITY TOTAL	ACTUAL	10500	10000	10600	12200	12600	13400	7400	9400	5800				10211	
KG /DAY (ACDT)	GUIDELINE	14650	14650	14650	14650	14650	14650	14650	14650	14650				14650	0
BOD 5 DAY	ACTUAL	2126	1939	2036	2706	1972	2213	2564	2842	2034				2270	
KG /DAY (BOD5)	GUIDELINE	1700	1700	1700	1700	1700	1700	1700	1700	1700				1700	9
CHEM. OX DEMAND	ACTUAL	4567	5416	4846	5075	5576	5614	6295	6114	5569				5452	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	1.48	1.47	0.22	2.65	1.55	0.91	1	2.27		1.02	2.85	1.44	1.53	
KG /DAY (PPUT)	GUIDELINE	10.9	11.1	10.9	11.7	12	12.8	12.9	13.2		9.02	8.83	7.99	11.03	0
RESIDUE PARTIC.	ACTUAL	808.4	950.3	689.5	788	842.7	914.5	1250.9	975.1	920.6	858	1187	645	903	
KG /DAY (RSP)	GUIDELINE	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	0
ZINC UNF.TOT.	ACTUAL	286	235	300	342	301	293	282	292	234	340.00	390.00	350.00	304	
KG /DAY (ZNUT)	GUIDELINE	50	50	50	50	50	50	50	50	50	50	50	50	50	12

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS ,   # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 21 OUT OF 53, FOR A TOTAL COMPLIANCE RECORD OF 60% IN 1989.

ACDT, BOD5, COD NOT MONITORED UNDER MISA MONITORING REGULATION

000190-00-0(0) COURTAULDS FIBRES CANADA AND COURTAULDS FILMS CORNWALL REPORT DATE: 2 MAY 90
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	7075	7399	7567	7763	7697	7706	7643	8117	7515	7076	7180	6495	7436	
M3 /DAY (FTFLOW)	GUIDELINE														
ACIDITY TOTAL	ACTUAL	10500	10000	10600	12200	12600	13400	7400	9400	5800				10211	
KG /DAY (ACDT)	GUIDELINE	14650	14650	14650	14650	14650	14650	14650	14650	14650				14650	0
BOD 5 DAY	ACTUAL	1529	1452	1665	2014	1351	1083	1553	2032	1523				1578	
KG /DAY (BOD5)	GUIDELINE	1700	1700	1700	1700	1700	1700	1700	1700	1700				1700	2
CHEM. OX DEMAND	ACTUAL	3596	4479	4187	4084	4389	4238	4554	4575	4588				4299	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	1.2	1.18		2.32	1.39	0.77	0.76	2.27		0.86	2.74	1.409	1.49	
KG /DAY (PPUT)	GUIDELINE	7.08	7.4		7.76	7.7	7.71	7.64	8.12		7.08	6.7	6.38	7.36	0
RESIDUE PARTIC.	ACTUAL	678	846	618	671	663	699	910	781	793	740	1011	502	743	
KG /DAY (RSP)	GUIDELINE	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	0
ZINC UNF.TOT.	ACTUAL	286	235	300	342	301	293	282	292	234	340	390	350	304	
KG /DAY (ZNUT)	GUIDELINE	50	50	50	50	50	50	50	50	50	50	50	50	50	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS ,# - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 14 OUT OF 52, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1989.

ACDT, BOD5, COD NOT MONITORED UNDER MISA MONITORING REGULATION

000190-00-0(0) COURTAULDS FIBRES CANADA AND COURTAULDS FILMS CORNWALL REPORT DATE: 7 MAR 90
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1140	1181	1104	1019	1094	1189	1123	993	719				1062	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	40	31	36	113	115	467	442	93	73				157	
KG /DAY (BOD5)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5.4	3.3	3.5	1	0.7	4.5	1.9	4.1	3.6				3.11	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION

000190-00-0(0) COURTAULDS FIBRES CANADA AND COURTAULDS FILMS CORNWALL

REPORT DATE: 7 MAR 90

CONTROL POINT: 0300 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1482	1322	1107	1672	1562	2230	2363	2243	1432	1949	1706	1300	1697	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	508	398	263	504	448	604	550	631	416				480	
KG /DAY (BOD5)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	971	937	659	991	1187	1376	1741	1539	981				1154	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.28	0.29	0.22	0.33	0.16	0.14	0.24			0.16	0.11	0.03	0.20	
KG /DAY (PPUT)	GUIDELINE	1.48	1.32	1.11	1.67	1.56	2.23	2.36			1.95	1.71	1.22	1.66	0
RESIDUE PARTIC.	ACTUAL	125	101	68	116	179	211	339	190	124	118	176	143	158	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
BOD5, COD NOT MONITORED UNDER MISA MONITORING REGULATION

000190-00-0(0) COURTAULDS FIBRES CANADA AND COURTAULDS FILMS CORNWALL

REPORT DATE: 7 MAR 90

CONTROL POINT: 0400 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1168	1181	1143	1305	1597	1672	1764	1820	1796				1494	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	49	58	72	75	58	59	19	86	22				55.3	
KG /DAY (BOD5)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.
THIS CONTROL POINT NOT MONITORED BY MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Cyanamid Canada Inc.
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001550003

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3782

RECEIVING WATERBODY: DIRECT: Niagara River and Queenston-Chippawa Hydro Power Canal to Niagara River
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Calcium carbide and calcium cyanide are produced by electric arc furnaces.

EFFLUENT CHARACTERISTICS: Cooling water from furnace operation. Contains Total Suspended Solids and phosphorus

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through two outfalls

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges In Ontario.

EXCEEDANCES: One total suspended solids exceedance in March 1989. Compliance assessement on total plant discharge (total of 2 outfalls).

REMEDIAL ACTIONS: None. Exceedance attributed to storm runoff conditions, guidelines met in 1990.

COMMENTS:

Toxicity results obtained under the MISA program are:

The data for two trout bioassays submitted to MOE under the MISA Monitoring regulation in 1989, indicated that both the Whittey Creek Final effluent and the Effluent to the Hydro Canal to have been non-acutely lethal to test fish.

03/08/91

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 25 FEB 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	31300	30800	32175	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.4	8.3	8.3	8.25	8.75	8.55	8.5	8.2	8.2	8.25	8.09	8.6	8.37	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	0.119	0.313	0.28	0*	0.18	0*	0.94	0	0	0	0.721	0.552	0.259	
KG /DAY (CCNAUR)	GUIDELINE	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	0
PHOSPHOR UNF.TOT.	ACTUAL	0*	0*	0*	0*	10.69	0*	13.82	0*	0*	0*	0*	0*	2.04	
KG /DAY (PPUT)	GUIDELINE	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	31.3	30.8	32.2	0
RESIDUE PARTIC.	ACTUAL	64.8	86.4	566	306.7	281	357.56	99.36	0*	176.1	294.8	129.6	139.6	208	
KG /DAY (RSP)	GUIDELINE	486	486	486	486	486	486	486	486	486	486	486	486	486	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - NIAGARA RIVER - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800	14200	13700	11325	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.5	8.5	8.2	8.4	8.5	8.5	8.5	8.2	8.3	8.2	8.13	8.7	8.39	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	0.119	0.313	0.28	0	0.18	0	0.94	0	0	0	0.653	0.466	0.246	
KG /DAY (CCNAUR)	GUIDELINE	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	28.4	27.4	22.7	0
PHOSPHOR UNF.TOT.	ACTUAL		0	0	0	3.56	0	0	0	0	0	0	0	0.324	
KG /DAY (PPUT)	GUIDELINE		10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	14.2	13.7	11.4	0
RESIDUE PARTIC.	ACTUAL	64.8	86.4	41.1	0	0	115.56	73.44	0	98.3	143.6		37	60	
KG /DAY (RSP)	GUIDELINE	162	162	162	162	162	162	162	162	162	162		206	166	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 46, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - HYDRO CANAL - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	21600	21600	21600	21600	21600	21600	21600	21600	21600	21600	17100	17100	20850	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.3	8.1	8.4	8.1	9	8.6	8.5	8.2	8.1	8.3	8.05	8.5	8.35	
(PH)	GUIDELINE														0
CYANIDE AVAIL	ACTUAL	0	0	0	0	0		0	0	0	0	0.068	0.086	0.014	
KG /DAY (CCNAUR)	GUIDELINE	43.2	43.2	43.2	43.2	43.2		43.2	43.2	43.2	43.2	34.2	34.2	41.6	0
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0	7.13	0	13.82	0	0	0	0	0	1.75	
KG /DAY (PPUT)	GUIDELINE	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	17.1	17.1	20.9	0
RESIDUE PARTIC.	ACTUAL	0	0	526.9	306.7	281	242	25.92	0	77.8	151.2	129.6	102.6	153	
KG /DAY (RSP)	GUIDELINE	324	324	324	324	324	324	324	324	324	324	257	257	313	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

000155-00-0(3)   CYANAMID CANADA INC. (NIAGARA PLANT)   NIAGARA FALLS   REPORT DATE: 25 FEB 91
SUMMARY FOR EMIS. TYPE: 16   FINAL DISCHARGE - GROSS DATA   DISCHARGED INTO: 02/004/   LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400	31300	30800	32175	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.4	8.3	8.3	8.3	8.8	8.6	8.5	8.2	8.2	8.3	8.1	8.6	8.4	
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0.119	0.313	0.28	0**	0.18	0**	0.98	0**	0**	0**	0.78	0.552	0.267	
KG /DAY (CCNAUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	3.58	0**	4.71	0**	13.38	0**	14.04	0**	4.86	0**	2.51	0**	3.59	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	672	250	767	14	333	588	203	281	400	354	1043	279	432	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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** BELOW DECTECTION LIMIT

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 20 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - NIAGARA RIVER - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10800	10800	10800	10800	10800	10800	10800	10800	10800	10800	14200	13700	11325	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.5	8.5	8.2	8.4	8.5	8.5	8.5	8.2	8.3	8.2	8.13	8.7	8.4	
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0.119	0.313	0.28	0**	0.18	0**	0.98	0**	0**	0**	0.68	0.466	0.252	
KG /DAY (CCNAUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.119	0**	0.173	0**	0.637	0**	0**	0**	3.13	0**	1.14	0**	0.43	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	334.8	5.4	108	0**	8.6	192.2	108	90.7	172.8	163.7	752.6	127.4	172.0	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

** BELOW DECTECTION LIMIT

000155-00-0(3) CYANAMID CANADA INC. (NIAGARA PLANT) NIAGARA FALLS REPORT DATE: 9 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - HYDRO CANAL - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	21600	21600	21600	21600	21600	21600	21600	21600	21600	21600	17100	17100	20850	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.3	8.1	8.4	8.1	9	8.6	8.5	8.2	8.1	8.3	8.05	8.5	8.3	
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0**	0**	0**	0**	0**	0**	0**	0**	0**	0**	0.1	0.086	0.016	
KG /DAY (CCNAUR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	3.46	0**	4.54	0**	12.74	0**	14.04	0**	1.73	0**	1.37	0**	3.16	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	337	244.1	658.8	14.2	324	395.3	95	190	226.8	190	290.7	151.2	259.8	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

** BELOW DECTECTION LIMIT

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Cyanamid Canada Inc., Welland Plant Niagara Falls	IMIS NO.: 0001550102
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Inorganic Chemical Manufacturing	SIC CODE: 3711
RECEIVING WATERBODY:	DIRECT: Thompson's Creek to Welland River to Niagara River INDIRECT:	

DESCRIPTION OF ACTIVITIES: Manufactures Inorganic nitrogen and phosphorus products (amonia, dicyandiamid)

EFFLUENT CHARACTERISTICS: Process and cooling waters.

EFFLUENT TREATMENT: Wastewater discharges to product recovery system, settling lagoons and then to open outfall.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: CONTROL ORDER (1976): BOD - 25 mg/l Loadings derived from effluent concentrations specified in Control Order (1976).

CERTIFICATE OF APPROVAL (1988): Company issued a Certificate of Approval requiring non-lethal effluent (toxicity) at all time. 1988

EXCEEDANCES: None. No exceedances of the listed parameters.

REMEDIAL ACTIONS:

COMMENTS: One trout bioassay conducted in 1989, indictated the final effluent to have been non-acutely lethal to test fish.

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the Millers Creek effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 80.7 %.

03/12/91

000155-01-0(2) CYANAMID CANADA INC. (WELLAND PLANT) NIAGARA FALLS REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	22158	20168	26375	23970	25034	24777	15994	17106	18534	20418	29426	12858	21402	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.1	8.1	7.9	8.1	8.2	8.3	8.2	8.1	8	7.9	7.9		
(PH)	REQUIREMENT														
BOD 5 DAY	ACTUAL	0*	383	50	0*	0*	35	0*	0*	15	0*	47		48.2	
KG /DAY (BOD5)	REQUIREMENT	554	504	659	599	626	619	400	428	463	510	736		554	0
CHROMIUM UNF.TOT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	
KG /DAY (CRUT)	REQUIREMENT	22.2	20.2	26.4	24	25	24.8	16	17.1	18.5	20.4	29.4	12.9	21.4	0
NH3-N TOTAL	ACTUAL	129	106	152	195	216	213	150	146	147	176	194	91	160	
KG /DAY (NHNTFR)	GUIDELINE	222	202	264	240	250	248	160	171	185	204	294	129	214	0
KJELDAHL ORGANIC	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	
KG /DAY (NNKUR)	GUIDELINE														
NO3-N FIL.REAC	ACTUAL	98	62	161	185	206	175	102	43	75	93	261	28	126	
KG /DAY (NNO3FR)	GUIDELINE														
K'DAHL N TOTAL	ACTUAL	646	647	856	683	622	661	342	612	513	471	746	462	605	
KG /DAY (NNTKFR)	GUIDELINE														
NITROGEN UNF.TOT.	ACTUAL	744.4	708.9	1016.9	867.4	827.8	836.4	444.4	655.7	588.6	564.8	1006.6	490.3	729	
KG /DAY (NNUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	17	17	22	17	24	25	12	14	16	20	29	10	18.6	
KG /DAY (PPUT)	REQUIREMENT	22.2	20.2	26.4	24	25	25	16	17.1	18.5	20.4	29.4	12.9	21.4	0
RESIDUE FILTERED	ACTUAL	109	107	138	180	144	167	150	94	108		242		144	
MG/L (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	105	82	176	340	270	272	0*	0*	0*	0*	0*	0*	104	
KG /DAY (RSP)	REQUIREMENT	332	303	396	360	376	372	240	257	278	306	441	193	321	0
RESIDUE TOTAL	ACTUAL	113	111	144	194	155	178	139	33	106		218		139	
MG/L (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

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000155-01-0(2)    CYANAMID CANADA INC. (WELLAND PLANT)             NIAGARA FALLS                                                          REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA                                                                                          ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS              JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------------
PH                    ACTUAL                8.1     8.1     8.1     7.9     8.1     8.2     8.3     8.2     8.1       8     7.9     7.9
(PH)                REQUIREMENT

BOD 5 DAY             ACTUAL   **          11.1     383    12.1     120    60.1    84.2      32    51.3    38.9    10.2    76.5     6.4
KG /DAY (BOD5 )     REQUIREMENT

CHROMIUM UNF.TOT.     ACTUAL   **          0.22     0.2    0.26    0.24    0.25    0.25    0.16    0.17    0.19     0.2    0.29    0.13    0.21
KG /DAY (CRUT )     REQUIREMENT

PHOSPHOR UNF.TOT.     ACTUAL                 17      17      22      17      24      25      12      14      16      20      29      10    18.6
KG /DAY (PPUT )     REQUIREMENT

RESIDUE FILTERED      ACTUAL                235   211.5     231     236     233   230.8   183.5   177.8   178.5       -   382.3       -
MG/L (RSF )          GUIDELINE

RESIDUE PARTIC.       ACTUAL                233     121     251     175     225     553     424       -       -       -    1251    1197
KG /DAY (RSP )      REQUIREMENT

RESIDUE TOTAL         ACTUAL                246     218     241     244     242     252     210     248     190       -     425       -
MG/L (RST )          GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
************************************************************************************************************************************************************
GROSS LOADING CALCULATED FROM DETECTION LIMIT CONCENTRATION
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001680008

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Stollery Lake to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds and radioactive material.

EFFLUENT TREATMENT: Lagoon - Two stage treatment consisting of lime addition to the tailings to effect pH control and metals precipitation in tailings area, followed by barium chloride for Ra_{226} precipitation and settling in a polishing pond.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000168-00-0(8)   DENISON MINES LIMITED   ELLIOT LAKE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	15898	15379	27216	34474	25747	22205	15638	20045	11837	20477	23155	15638	20642	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	7.8	7.7	8.2	8.2	7.6	7.5	7.9	7.9	7.6	7.6	8.6	7.88	0
(PH)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL				0.69			0.31			0.2			0.4	
KG /DAY (CUUT)	GUIDELINE				S/C			S/C			S/C				
NICKEL UNF.TOT.	ACTUAL				1.38			2.2			2.5			2.03	
KG /DAY (NIUT)	GUIDELINE				S/C			S/C			S/C				
LEAD UNF.TOT.	ACTUAL				2.76			0.63			1.2			1.53	
KG /DAY (PBUT)	GUIDELINE				S/C			S/C			S/C				
RADIUM 226 FIL.	ACTUAL	0.06	0.06	0.091	0.083	0.052	0.053	0.07	0.053	0.05	0.07	0.06	0.05	0.063	
BQ/L (RA226F)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
RADIUM 226	ACTUAL	0.76	0.63	1.76	1.79	1.1	0.99	0.87	0.75	0.98	0.81	1.27	0.62	1.03	
BQ/L (RA226T)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	48	62	191	310	309	200	96	140	71	186	232	109	163	
KG /DAY (RSP)	GUIDELINE	238	231	408	517	386	333	235	301	178	307	347	235	310	0
ZINC UNF.TOT.	ACTUAL				2.06			0.96			0.61			1.2	
KG /DAY (ZNUT)	GUIDELINE				S/C			S/C			S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Denison Mines Ltd. (Stanrock)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001680206

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 60 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Mine is currently closed.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff and mine water is treated with lime slurry and barium chloride; the precipitates are settled in treatment ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

11/13/90

000168-02-0(6)   DENISON MINES LTD., STANROCK PROP.   ELLIOT LAKE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3629	1582	5357	15379	3197	3802	1125	2592	2333	2246	5270	3110	4118	
M3 /DAY (PTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	8.3	9.3	7.7	8.1	8.1	7.6	7.7	7.5	7.1	7	7.4	7.81	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL				0.31			0.02			0.02			0.117	
KG /DAY (CUUT)	GUIDELINE				S/C			S/C			S/C				
NICKEL UNF.TOT.	ACTUAL				0.31			0.02			0.09			0.14	
KG /DAY (NIUT)	GUIDELINE				S/C			S/C			S/C				
LEAD UNF.TOT.	ACTUAL				0.46			0.02			0.09			0.19	
KG /DAY (PBUT)	GUIDELINE				S/C			S/C			S/C				
RADIUM 226	ACTUAL	1.1	4.1	2.2	1.9	2.4	3	3.5	6.3	2.7	1.6	3.2		2.73	
PCI/L AS RA	GUIDELINE														
RADIUM 226	ACTUAL	0.06	0.15	0.083	0.072	0.091	0.114	0.133	0.168	0.1	0.06	0.12	0.06	0.10	
BQ/L (RA226T)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
RESIDUE PARTIC.	ACTUAL	4	4.1	5.4	46.1	3.2	3.8	2.2	13	2.3	4.5	5.3	3.1	8.08	
KG /DAY (RSP)	GUIDELINE	54.6	20.7	80.4	230.7	48.0	57.0	16.8	38.9	35.0	33.7	79.1	46.7	61.8	0
ZINC UNF.TOT.	ACTUAL				0.31			0.02			0.09			0.14	
KG /DAY (ZNUT)	GUIDELINE				S/C			S/C			S/C				S/C

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: (Williams Lake - Beaver Pond Outlet)
Elliot Lake

IMIS NO.: 0001680107

MOE REGION: Northeast

DISTRICT: Sault Ste.Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Williams Lake to Beaver Pond to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Idle tailings area.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff is treated with caustic and barium chloride, precipitate is settled in Beaver Pond area and the effluent discharges to Serpent River.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000168-01-0(7)   DENISON MINES LTD   ELLIOT LAKE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	190	173	1123	4234	691	518	86		86	259	864	173	700	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.4	8.2	8.3	7.7	7.5	7.2		7.5	7.3	7.4	7.8	7.63	0
(PH)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL				0.08						0.003			0.042	
KG /DAY (CUUT)	GUIDELINE				S/C						S/C				
NICKEL UNF.TOT.	ACTUAL				0.08						0.005			0.043	
KG /DAY (NIUT)	GUIDELINE				S/C						S/C				
LEAD UNF.TOT.	ACTUAL				0.13						0.008			0.069	
KG /DAY (PBUT)	GUIDELINE				S/C						S/C				
RESIDUE PARTIC.	ACTUAL	0.17	0.17	1.1	8.5	0.69	0.52	0.35		0.09	0.26	0.86	0.17	1.17	0
KG /DAY (RSP)	GUIDELINE	2.85	2.59	16.8	63.5	10.4	7.78	1.3		1.3	3.89	13	2.59	11.5	
ZINC UNF.TOT.	ACTUAL				0.08						0.003			0.042	
KG /DAY (ZNUT)	GUIDELINE				S/C						S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000168-01-0(7)   DENISON MINES LTD   ELLIOT LAKE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RADIUM 226 FIL.	ACTUAL	0.04	0.04	0.05	0.04	0.07	0.07	0.24		0.1	0.08	0.07	0.09	0.1	0
BQ/L (RA226F)	GUIDELINE	0.37	0.37	0.37	0.37	0.37	0.37	0.37		0.37	0.37	0.37	0.37	0.37	
RADIUM 226	ACTUAL	1.6	2.2	5.1	2.7	0.12	0.11	9.7		3.51	3	4.6		3.3	
PCI/L AS RA	GUIDELINE														
RADIUM 226	ACTUAL	0.06	0.08	0.19	0.1	0.004	0.004	0.36		0.13	0.11	0.17	0.18	0.13	
BQ/L (RA226T)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Detour Lake Mine
& PLANT LOCATION: Timmins

IMIS NO.: 0028940005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Milling, Smelting

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Sunday Lake
INDIRECT: Detour River

DESCRIPTION OF ACTIVITY: Gold mining and milling operation using carbon-in-pulp method.

EFFLUENT CHARACTERISTICS: Contains copper and cyanide, and lesser amounts of other heavy metals.

EFFLUENT TREATMENT: Natural degradation in tailings area with the decant liquor being treated by hydrogen peroxide prior to discharge to a polishing pond.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The present Certificate of Approval states the maximum allowable concentrations for copper and cyanide are 1.0 mg/L and 2.0 mg/L respectively at the final discharge point. In 1987 a C. of A. was issued for treating the tailing decant with hydrogen peroxide.

EXCEEDANCES: Yes one (1) exceedance of the monthly average for copper.

REMEDIAL ACTIONS: The company experienced exceedances of discharge criteria for certain metals during the spring run-off. Hydraulic loading also exceeded treatment plant capability. A Certificate of Approval was issued in 1989 for expansion of the hydrogen peroxide plant. Construction was completed in 1990. Effluent was not in compliance for ammonia in summer 1990. Company is investigating methods of reducing ammonia.

One of two trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 56.0 %. The other sample was determined to have been non-acutely lethal to test fish.

COMMENTS:

03/21/91

002894-00-0(5)   PLACER DOME INC., DETOUR LAKE MINES   TIMMINS   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL MG/L AS HCN	ACTUAL GUIDELINE	0.02 2	0.021 2	0.032 2	0.009 2	0.426 2	0.122 2	0.026 2	0.014 2	0.039 2	0.022 2	0.016 2	0.013 2	0.063 2	0
COPPER UNF.TOT. MG/L AS CU	ACTUAL REQUIREMENT	0.294 1	0.244 1	0.235 1	0.234 1	0.916 1	1.335 1	0.758 1	0.429 1	0.466 1	0.777 1	0.549 1	0.394 1	0.553 1	1
NICKEL UNF.TOT. MG/L AS NI	ACTUAL GUIDELINE	0.028 1	0.026 1	0.025 1	0.022 1	0.037 1	0.077 1	0.046 1	0.037 1	0.033 1	0.042 1	0.049 1	0.032 1	0.038 1	0
LEAD UNF.TOT. MG/L AS PB	ACTUAL GUIDELINE	0.018 1	0.018 1	0.02 1	0.09 1	0.014 1	0.023 1	0.01 1	0.022 1	0.027 1	0.016 1	0.025 1	0.015 1	0.025 1	0
PH (PH)	ACTUAL GUIDELINE	6.88	6.96	6.81	6.73	6.74	7.21	7.69	7.74	7.5	7.73	7.22	7.03	7.19	0
ZINC UNF.TOT. MG/L AS ZN	ACTUAL GUIDELINE	0.017 1	0.012 1	0.008 1	0.008 1	0.007 1	0.008 1	0.005 1	0.025 1	0.007 1	0.015 1	0.017 1	0.01 1	0.012 1	0

NOTE: S/C [illegible]EE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 71, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dickenson Mines Ltd.
& PLANT LOCATION: Arthur W. White Mine
Township Golden-Balmertown

IMIS NO.: 0034480004

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area: secondary and tertiary polishing for cyanide removal: total retention of wastewaters during critical late-winter, early summer period for complete cyanide degradation.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-059-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Yes. Arsenic nine out of twelve months, copper two of twelve months, solids one of twelve months

REMEDIAL ACTIONS: Final discharge point is shared with Campbell Mine which is undertaking a major process change to reduce arsenic and metal concentrations in the final effluent.

COMMENTS: The effluent discharge point is shared with Placer Dome Inc., Campbell Mine, thus the loadings and comments for the two are identical. Effluent discharges occurred on 241 days of the year (66%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.

Ten trout bioassays conducted in 1989 indicated the final effluent is usually not acutely lethal to the test fish. Seven samples collected had 96 hour LC50s which were greater than 100% or non-lethal . The remaining three results were 32.7, 69.8, and 83.8%

003448-00-0(4)   DICKENSON MINES LIMITED, ARTHUR W. WHITE   BALMERTON   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18700	4090	0	0	17210	96950	41030	11950	30000	69040	56510	27660	37312	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.5	0.55			0.57	0.51	0.52	0.53	0.71	1.08	1.14	1.22	0.73	
MG/L (ASUT)	REQUIREMENT	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	9
CYANIDE AVAIL	ACTUAL	0.12	0.22			0.61	0.44	0.16	0.16	0.1	0.08	0.1	0.13	0.21	
MG/L (CCNAUR)	REQUIREMENT	2	2			2	2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.52	0.51			1.5	1.19	0.74	0.51	0.41	0.37	0.37	0.43	0.66	
MG/L (CUUT)	REQUIREMENT	1	1			1	1	1	1	1	1	1	1	1	2
NICKEL UNF.TOT.	ACTUAL	1	1			0.88	0.82	0.69	0.55	0.5	0.53	0.55	0.61	0.71	
MG/L (NIUT)	REQUIREMENT	1	1			1	1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL	21	8			10	10	7	4	2	3	5	7	7.70	
MG/L (RSP)	REQUIREMENT	15	15			15	15	15	15	15	15	15	15	15	1
ZINC UNF.TOT.	ACTUAL	0.21	0.19			0.29	0.19	0.13	0.09	0.08	0.08	0.08	0.11	0.15	
MG/L (ZNUT)	REQUIREMENT	1	1			1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dofasco Inc.
& PLANT LOCATION: Hamilton

IMIS NO.: 0001460005

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron & steel production including 246 Coke ovens, 4 Blast Furnaces, 2 B.O.F. shops and numerous rolling mills.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery, ion exchange and biological treatment.

DISCHARGE TYPE: continuous through four shore outfalls.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines on total plant discharge (Net data Jan to Oct, Gross data Nov, Dec)

EXCEEDANCES: One RSP exceedance in October. Exceedance caused by the use of a smaller standby clarifier while the MISA flow meter was installed. The December exceedance is due to change in reporting format from IMIS NET data to MISA GROSS data.

REMEDIAL ACTIONS: None required.

COMMENTS: Blast furnace water recirculation system was under construction in 1988 and placed in operation in early 1989

Toxicity results obtained under the MISA program are:

The data for seven trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated that East Boat Sewer, Ottawa Street Sewer, and West Bay Front Sewer effluents to have been non-acutely lethal to test fish.

This company has converted to MISA monitoring and "Gross" loadings and should not be compared to the 'Net' loadings of IMIS in previous years.

03/21/91

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 12 APR 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200 0300 0400
DATA FOR 1989 - NET DATA JANUARY TO OCTOBER; GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	582256	582256	628256	628256	628256	628256	628256	628256	628256	628256	632383	720025	623342	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.78	7.65	7.80	7.83	7.63	7.75	8.13	8.10	8.10	8.08	7.62	7.78		
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	1260	523	4788	3842	6627	0*	7547	8215	3886	4610			4110	
KG /DAY (BOD5)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800			11800	0
CYANIDE AVAIL	ACTUAL	51.8	89.8	48.3	64.6	56.5	31.8	31.8	27.9	43.1	55.5	34.5	65.2		
KG /DAY (CCNAUR)	GUIDELINE	157	157	157	157	157	157	157	157	157	157	157	157		0
CHROMIUM UNF.TOT.	ACTUAL	1.7	0*	9.9	2.5	1.8	0*	1.4	4.4	0*	1.2	22.8	11.3		
KG /DAY (CRUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787		0
IRON UNF.TOT.	ACTUAL	1467	1312	1827	1493	1313	817	999	836	1401	1806	1599	2189		
KG /DAY (FEUT)	GUIDELINE	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870	7870		0
NH3-N TOTAL	ACTUAL	450	350	281	221	168	272	190	252	214	281			268	
KG /DAY (NNHTUR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	8.35	2.78	5.90	1.41	0.79	0*	0.45	0.68	2.65	0.45	16.07	20.66		
KG /DAY (PHNOL)	GUIDELINE	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7		0
PHOSPHOR UNF.TOT.	ACTUAL	1.2	2.3	6.3	3.0	2.5	10.1	8.6	4.7	2.9	0*	38.7	68.9		
KG /DAY (PPUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787		0
RESIDUE PARTIC.	ACTUAL	8198	3874	6962	7815	3529	1115	5155	5112	6203	13081	10711	12416		
KG /DAY (RSP)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800		2
SOLVENT EXTRACT.	ACTUAL	208	0*	70	0*	165	186	146	30	235	58	726	802		
KG /DAY (SOLEXT)	GUIDELINE	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800	11800		0
ZINC UNF.TOT.	ACTUAL	38.6	48.3	12.3	29.8	38.9	60.2	49.7	10.9	39.6	30.8	76.0	56.7		
KG /DAY (ZNUT)	GUIDELINE	787	787	787	787	787	787	787	787	787	787	787	787		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 118, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

BOD5, NNHTUR, FWTEMP, NOT MONITORED UNDER MISA MONITORING REGULATION

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - EAST BOAT SLIP SEWER - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	106188	130227	61568	
KS /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.8	8	7.8	7.6	7.5	8.1	8.2	8.1	7.9	7.576	7.814		
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	126	8	321	315	114	0*	465	529	297	305			227	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CYANIDE AVAIL	ACTUAL	1	0.85	0.9	1.15	1.65	0.4	0.45	0.95	0.8	1.3	3.301	4.114	0.945	
KG /DAY (CCNAUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CHROMIUM UNF.TOT.	ACTUAL	0*	0	0.8	0	0	0	0.5	0	0	0	2.222	3.53		
KG /DAY (CRUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
IRON UNF.TOT.	ACTUAL	35	0	19	60	0	0*	11	3	0*	0*	69.913	82.008		
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
NH3-N TOTAL	ACTUAL	2.7	0*	21.4	0.5	0*	0*	9.9	11.6	6.1	11.9			6.01	
KG /DAY (NNHTUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	0.05	0.05	0.1	0.05	0.05	0	0.05	0	0.2	0.05	0.775	0.718		
KG /DAY (PHNOL)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
PHOSPHOR UNF.TOT.	ACTUAL	0*	0.5	0.2	0	0	0.5	0.2	0	0.2	0*	5.608	9.413		
KG /DAY (PPUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
RESIDUE PARTIC.	ACTUAL	87	181	286	172	0*	0*	193	201	0*	0*	854	975		
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	11	0	0*	0	0*	17	9	0	21	21	111.897	157.339		
KG /DAY (SOLEXT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
WATER TEMP	ACTUAL	7.2	6.6	8.6	16.4	21.8	25.6	29	30.4	29	24			19.9	
DEG.C (FWTEMP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	1.8	0.2	0*	0.85	0*	2.6	2.65	0*	1.3	0.1	5.258	2.38		
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

BOD5, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - OTTAWA STREET - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	129564	129564	175564	175564	175564	175564	175564	175564	175564	175564	160198	158298	165178	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.3	7.6	7.7	7.3	7.7	8	7.9	7.8	7.6	7.429	7.745		
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	0*	0*	739	1763	2319	0*	1128	1519	0*	60			512	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CYANIDE AVAIL	ACTUAL	0*	0	0*	0*	0*	0*	0*	0*	0*	0*	6.77	1.65		
KG /DAY (CCNAUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
CHROMIUM UNF.TOT.	ACTUAL	1.7	0	9.1	2.5	1.8	0	0.9	4.4	0	1.2	14.1	2.5		
KG /DAY (CRUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	264	332	970	465	298	188	45	226	493	582	460.14	467.782		
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
NH3-N TOTAL	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*			0*	
KG /DAY (NNHTUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	0	0	0*	0	0	0	0	0	0	0	0.958	0.244		
KG /DAY (PHNOL)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PHOSPHOR UNF.TOT.	ACTUAL	1.2	1.7	5.3	2.6	2.5	8.9	7.6	4.4	2.3	0*	15.1	8.6		
KG /DAY (PPUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	568	374	2062	1933	98	0*	0*	427	900	503	1526.007	3604		
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	120	0	24	0	0*	21	73	30	99	0*	233.344	275.857		
KG /DAY (SOLEXT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
WATER TEMP	ACTUAL	11.8	13.5	17.9	17.2	22.4	26.2	28.7	29	27.9	22.7			21.7	
DEG.C (FWTEMP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	3.16	0.35	6.072	4.643		
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

BOD5, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION

000146-00-0(5)   DOFASCO INC   HAMILTON   REPORT DATE: 17 MAR 91

CONTROL POINT: 0300 DATA FOR 1989 - BOILERHOUSE SEWER 2 - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	61756	61756	61756	61756	61756	61756	61756	61756	61756	61756		62867	61756	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.9	7.8	8	8	7.9	7.7	8.1	8.1	8	7.9	7.692	7.822		
	GUIDELINE														
BOD 5 DAY	ACTUAL	36	293	367	304	0*	0*	379	783	401	358			207	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CYANIDE AVAIL	ACTUAL	0*	0.31	0*	0*	0*	0*	0*	0*	0*	0*		0.409		
KG /DAY (CCNAUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CHROMIUM UNF.TOT.	ACTUAL	0*	0	0	0	0	0	0*	0	0	0		0.819		
KG /DAY (CRUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
IRON UNF.TOT.	ACTUAL	0*	0*	6	7	11	9	57	6	0*	0*		19.154		
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
NH3-N TOTAL	ACTUAL	11.2	4.2	1.4	10	10.9	0*	0*	0*	2.5	0*			1.45	
KG /DAY (NNHTUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	0.12	0	0*	0	0.06	0	0.06	0	0.06	0.06		0.126		
KG /DAY (PHNOL)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
PHOSPHOR UNF.TOT.	ACTUAL	0*	0.1	0.6	0.2	0	0.3	0.2	0.3	0.1	0*		3.93		
KG /DAY (PPUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
RESIDUE PARTIC.	ACTUAL	155	0*	0*	85	2	7	494	0*	92	0*		267		
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
SOLVENT EXTRACT.	ACTUAL	0	0*	0*	0	6	0*	0	0*	26	37		43.396		
KG /DAY (SOLEXT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
ZINC UNF.TOT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0.68	0*		2.037		
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C		
WATER TEMP	ACTUAL	18.9	11.2	11.9	16.6	22.6	25.7	29.7	30.6	28.7	21.3			21.7	
DEG.C (FWTEMP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5C - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

BOD5, NNHTUR ARE NOT MONITORED BY MISA MONITORING REGULAION

REPORTED VALUES FOR PH, CRUT, FEUT, PHNOL, RSP, SOLEXT, ZINC ARE BASED ON ONE SAMPLE RESULT

000146-00-0(5)   DOFASCO INC   HAMILTON   REPORT DATE: 17 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - WEST BAY FRONT SEWER - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	340957	340957	340957	340957	340957	340957	340957	340957	340957	340957	305997	358635	343350	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	7.7	7.6	7.8	7.7	8.1	8.3	8.2	8.5	8.9	7.772	7.739		
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	1100	222	3361	1260	4194	0*	5575	5384	3188	3887			2323	
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
CYANIDE AVAIL	ACTUAL	50.8	88.65	47.39	63.42	54.09	31.37	31.37	26.94	42.28	54.21	24.4	59		
KG /DAY (CCNAUR)	GUIDEL[illegible]	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
CHROMIUM UNF.TOT.	ACTUAL	0*	0	0	0	0	0	0*	0	0	0	6.5	4.5		
KG /DAY (CRUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	1168	980	832	961	1004	620	806	601	908	1226	1068.742	1620.021		
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
NH3-N TOTAL	ACTUAL	436.5	345.9	258.2	210.5	156.7	271.6	180.5	240.8	207.7	268.8			258	
KG /DAY (NNHTUR)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	8.18	2.73	5.8	1.36	0.68	0	0.34	0.68	2.39	0.34	14.339	19.567		
KG /DAY (PHNOL)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
PHOSPHOR UNF.TOT.	ACTUAL	0*	0*	0.2	0.2	0*	0.4	0.6	0*	0.3	0*	18	47		
KG /DAY (PPUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	7388	3319	4614	5625	3429	1108	4468	4484	5211	12578	8333	7570		
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	77	0*	46	0	159	148	64	0*	89	0*	380.796	368.457		
KG /DAY (SOLEXT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
WATER TEMP	ACTUAL	15.7	10.5	14	20.2	23.9	27.9	31.2	30.4	31.2	26.2			23.1	
DEG.C (FWTEMP)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	36.82	48.07	12.27	28.98	38.87	57.62	47.05	10.91	34.44	30.35	64.701	49.666		
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

BOD5, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION

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000146-00-0(5)    DOFASCO INC                                                  HAMILTON                                                         REPORT DATE: 21 DEC 90
S U M M A R Y  FOR  EMIS. TYPE: 16   FINAL DISCHARGE                       DISCHARGED INTO: 02/004/        LAKE ONTARIO
                    INCLUDES CONTROL POINTS :  0100 0200 0300 0400
                    DATA FOR 1989 - GROSS LOADINGS
FLOW/LOADING        PARAMETERS                                                                                                                 ANNUAL    TOTAL
                                  JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------------
BOD 5 DAY            ACTUAL      21780    21088    24715    22972    14025     5846    14638    15975    16046    18358                     17618
KG /DAY (BOD5 )     GUIDELINE

CYANIDE AVAIL        ACTUAL      58.33    97.24    55.35    70.69    72.91    36.39    37.65       33    48.33    61.12                     57.10
KG /DAY (CCNAUR)    GUIDELINE

CHROMIUM UNF.TOT.    ACTUAL       1.53     3.87    13.87     6.37     5.67     3.87     2.47     8.27     3.87     5.07                      5.49
KG /DAY (CRUT )     GUIDELINE

IRON UNF.TOT.        ACTUAL       1666     1502     2028     1694     1514     1008     1208     1037     1506     1980                      1522
KG /DAY (FEUT )     GUIDELINE

NH3-N TOTAL          ACTUAL     1137.8   1185.5     1204     1164      995      645   433.13    617.8    403.4    708.6                     829.4
KG /DAY (NNHTUR)    GUIDELINE

PHENOLS UNF-REAC     ACTUAL      10.57      5.8     8.33     3.95     3.36     2.57     3.02     3.25     5.22     3.02                      4.91
KG /DAY (PHNOL )    GUIDELINE

PHOSPHOR UNF.TOT.    ACTUAL       12.1        9       11      7.8     10.3       15     14.5     13.5      7.7     12.6                      11.4
KG /DAY (PPUT )     GUIDELINE

RESIDUE PARTIC.      ACTUAL      11812     7191    11511    13440     9783     5586    10736     9938     9200    18562                     10776
KG /DAY (RSP )      GUIDELINE

SOLVENT EXTRACT.     ACTUAL       1001      877      970      667      869     2089      813      736      902      862                       979
KG /DAY (SOLEXT)    GUIDELINE

ZINC UNF.TOT.        ACTUAL      54.42    61.49     24.5     44.3    50.29   119.09    60.82    11.76    56.28    46.76                     52.97
KG /DAY (ZNUT )     GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY
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WASTEWATER DISCHARGE SUMMARY

1989

COMPANY NAME: & PLANT LOCATION: Dofasco Ltd. - Adams Mine Kirkland Lake

IMIS NO.: 0001400001

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Misema River To Blanche River
INDIRECT:

DESCRIPTION OF ACTIVITY: Mining and concentrating iron ore.

EFFLUENT CHARACTERISTICS: Contains iron, solids, nitrate, turbidity.

EFFLUENT TREATMENT: Tailings pond to settle solids and allow time for natural degradation

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: suspended solids (RSP) 2, iron - 2

REMEDIAL ACTIONS:

COMMENTS: Exceedances resulted from high flow conditions. The company has ceased its mine and milling operation on March 1 1990. An interministry committee is overseeing the site de-commissioning. The company continues to monitor the tailing management system as required by the C of A.

Two trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/12/91

000140-00-0(1) DOFASCO INC. - ADAMS MINE KIRKLAND LAKE REPORT DATE: 4 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON UNF.TOT.	ACTUAL	0.73	0.79	0.16	1.31	0.53	2.03	0.75		0.46		0.25	0.21	0.722	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1		1		1	1	1	2
NO2+NO3N UNF.REAC	ACTUAL	1.59	1.06	1.07	1.37	0.38	0.87	0.02		0.17			28.1	3.85	
MG/L AS N (NNOTUR)	GUIDELINE														
PH	ACTUAL	7.29	7.5	7.19	7	7.58	7.41	7.9		7.62		7.76	7.1	7.44	
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	346	596	499	351	317	378	342		386		420	420	406	
MG/L (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5	6	6.5	9.5	30.5	38	14		5		6.5	8	12.9	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15		15		15	15	15	2
TURB'ITY	ACTUAL	6.5	3	4	10.9	38.1	34.8	14		4.1			6.5	13.5	
MG/L (TURB)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME & PLANT LOCATION: Domtar Fine Papers, Cornwall

IMIS NO.: 0000140301

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT**: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine paper is made from logs and chips by the kraft pulping process and from purchased pulp.

EFFLUENT CHARACTERISTICS: Contains dissolved and suspended solids generated from the pulping of wood, the bleaching of pulp and the manufacture of paper.

EFFLUENT TREATMENT: Primary using a clarifier.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE)**: The control order was served in January 1990 and set now requirements for the discharge of BOD5 and organochlorines (measured as AOX) . Company also has to meet efficiency standard for suspended solids removal.

MOE OR FEDERAL GUIDELINES: BOD5 target load set by Pulp and Paper Effluent Guidelines, Ottawa 1972. (Federal) . Specific target varies with production and averaged 16.350 kg/day in 1989.

EXCEEDANCES: BOD5 target was exceeded for four out of twelve months.

REMEDIAL ACTIONS: Under the terms of the Control Order, the Ministry is studying a report submitted by the company on its suspended solids removal system. A RSP requirement will be set soon.

COMMENTS: Company is part of MISA Pulp and Paper Sector which will lead to enforceable requirements.

One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of four days exposure was 80.6 %.

000014-03-0(1) DOMTAR INC., FINE PAPERS DIVISION CORNWALL REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	107090	106020	105840	108240	107610	108230	109490	113750	121190	131220	128840	122940	114205	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	15260	18730	16330	14440	13760	14490	12150	13350	18430	20150	20100	19000	16349	
KG /DAY (BOD5)	GUIDELINE	17251	17512	18215	19310	17474	19528	18354	18630	18721	18538	16970	16238	18062	4
PHOSPHOR UNF.TOT.	ACTUAL	33.2	35	30.7	30	25.8	31.4	26.5	27.3	15.7	35.4	49	34.4	31.2	
KG /DAY (PPUT)	GUIDELINE	107.09	106.02	105.84	108.24	107.61	108.23	109.49	113.75	121.19	131.22	128.84	122.94	114.21	0
RESIDUE FILTERED	ACTUAL	94300	108921	105301	102001	98400	100671	95030	99550	99820	126241	121951	121061	106104	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	6210	7970	6960	5900	6130	6980	7720	7110	7080	5700	7340	10440	7128	
KG /DAY (RSP)	GUIDELINE	11721	12149	11670	12541	12443	12411	11351	11626	11938	12352	12017	11337	11963	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Domtar Fine Papers
& PLANT LOCATION: St. Catharines

IMIS NO.: 0000140509

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 9.1 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are converted into paper products.

EFFLUENT CHARACTERISTICS: Enough fibres (fine) to make effluent look "milky".

EFFLUENT TREATMENT: Extensive reuse of wastewater and primary clarifier (preceded by several "Savealls" and screens. Type of starch used was changed to reduce BOD load.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Target loads set by MOE Pulp and Paper Committee with Best Practicable Technology.

EXCEEDANCES: Company exceeded Pulp and Paper Committee guidelines for BOD5 throughout 1989.

REMEDIAL ACTIONS: Company's program for partial wastewater diversion of high BOD5 to sanitary sewer was completed in December 1990. Company met pulp & paper committee guidelines in Jan 91.

COMMENTS: Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/08/91

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000014-05-0(9)    DOMTAR INC., FINE PAPERS DIVISION           ST. CATHARINES                                                          REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - OLD WELLAND CANAL                                                                         ANNUAL     TOTAL
FLOW/LOADING       PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC   AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                 ACTUAL           9687    8791    8742    8849    9545    9548   10218   10076 5014.01    9971   10539   10286     9272
M3 /DAY (FTFLOW)   GUIDELINE

BOD 5 DAY            ACTUAL            957     927     927     974    1030    1002     946     579     688     803     906    1010      896
KG /DAY (BOD5 )    GUIDELINE           484     440     437     442     477     477     511     504     251     499     527     514      464        12

RESIDUE FILTERED     ACTUAL            420     361     399     387     400     353     367     355     344     325     361     325      366
MG/L (RSF )        GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  12 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF   0% IN 1989.
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000014-05-0(9)    DOMTAR INC., FINE PAPERS DIVISION           ST. CATHARINES                                                          REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - OLD WELLAND CANAL                                                                         ANNUAL     TOTAL
FLOW/LOADING       PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC   AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.      ACTUAL            407     369     253     319     277     277     326     273     380     319     410     422      336
KG /DAY (RSP )     GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
********************************************************************************************************************************************************
GROSS DATA PROVIDED FOR COMPARISON PUROSES
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000014-05-0(9)    DOMTAR INC., FINE PAPERS DIVISION           ST. CATHARINES                                                          REPORT DATE:25 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - NET DATA - OLD WELLAND CANAL                                                                           ANNUAL     TOTAL
FLOW/LOADING       PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC   AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE FILTERED     ACTUAL           1819    1262     852    2074    2157     918    1648    1761    1403    1660    1279     910     1479
KG /DAY (RSF )     GUIDELINE

RESIDUE PARTIC.      ACTUAL            276     309     206     165       0     103     117     127      57     104     109      87      138
KG /DAY (RSP )     GUIDELINE           484     440     437     442     477     477     511     504     251     499     527     514      464         0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Domtar Packaging Ltd.
& PLANT LOCATION: Red Rock

IMIS NO.: 0000140202

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior (Nipigon Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood logs and chips are made into newsprint and linerboard by the groundwood and kraft processes. Kraft mill semi-bleaches some pulp.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibre) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifier for high solids wastewater and spill pond. Foul condensates are steam stripped of odourous organic compounds.

DISCHARGE TYPE: All mill effluents are combined into one ditch for discharge to Lake Superior.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued on Sept. 29, 1986. The Company is required to meet specific BOD and TSS loadings averaged over 30 consecutive working days on the total mill effluent discharged (BOD - 23 metric tonnes/day [23,000 kg/day] and suspended solids - 5.5 metric tonnes/day [5,500 kg/day]). In addition, the Company is required to meet a toxicity requirement. Generic Kraft Mill Control Order took effect November 89. Daily maximum BOD limit is 45 tonnes; 30 day average limit is 26.2 tonnes per day. Daily maximum limit for Suspended Solids is 10.0 tonnes; 30 day average limit is 6.3 tonnes per day

EXCEEDANCES: Six Suspended Solids (RSP) exceedances were recorded in 1989.

REMEDIAL ACTIONS: The exceedances occurred during maintenance procedures. Company is to put more emphasis on maintenance planning and procedures to avoid exceedances.

COMMENTS:

Four of six trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 31.6 % to 100%. When installation of the new pulp washers is complete, reduction in suspended solids and toxicity is expected

03/13/91

000014-02-0(2) DOMTAR INC., CONTAINERBOARD DIVISION RED ROCK REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	96700	102501	103621	96070	98460	105561	99320	107601	100221	99560	85620	93100	99028	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	15500	17720	19090	15400	16960	16450	12050	11840	11250	12370	13010	13700	14612	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
RESIDUE PARTIC.	ACTUAL	4800	4930	4270	4140	4740	4820	5090	3800	4040	5120	4020	5460	4603	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
NOTE - SEE SUMMARY PAGE FOR CONTROL ORDER REQUIREMENTS

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Domtar Inc. Containerboard Div.
(previously reported as Domtar Packaging)
& PLANT LOCATION: Trenton

IMIS NO.: 0000140608

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT:** Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Hardwood (maple, poplar) chips are made into pulp by a sodium carbonate cook; the pulp is formed into corrugating medium.

EFFLUENT CHARACTERISTICS: Low wastewater volume. High concentration of BOD5 and suspended solids.

EFFLUENT TREATMENT: Spent cooking liquor is stored separately for use as a binder/road dust suppresant (30 years of experience). No wastewater treatment facilities; approached historically through water recycling/wastewater reduction.

DISCHARGE TYPE: Continuous diffuser.

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Under the current Federal Pulp and Paper Effluent Regulations, based on 1989 production, the average limits were 1,830 kg/day for suspended solids and 6,233 kg/day for BOD5.

EXCEEDANCES: Yes. 4 months for BOD5 and 1 month for suspended solids.

REMEDIAL ACTIONS: New whitewater storage tank and pulp stock washer constructed and put into operation during 1989 have resulted in effluent quality improvements over 1988. 1990 data shows annual compliance; however, one month did not meet BOD requirements.

COMMENTS:

03/12,/91

000014-06-0(8)   DOMTAR INC., CONTAINERBOARD DIVISION   TRENTON
CONTROL POINT: 0100 DATA FOR 1989   REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3103	3224	3088	3951	4108	3552	3714	3472	3433	3913	4484	.4647	3724	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	5485	5200	4929	6489	6827	5535	6291	4832	5685	5707	6287	4956	5685	
KG /DAY (BOD5)	GUIDELINE	6233	6233	6233	6233	6233	6233	6233	6233	6233	6233	6233	6233	6233	4
CHEM. OX DEMAND	ACTUAL	10072	9153	7856	10550	10558	9003	10012	8324	10320	8646	10026	12124	9720	
KG /DAY (COD)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1812	1741	1532	1596	1205	1023	761	931	1562	1917	1638	1097	1401	
KG /DAY (RSP)	GUIDELINE	1830	1830	1830	1830	1830	1830	1830	1830	1830	1830	1830	1830	1830	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Domtar Wood Preserving
& PLANT LOCATION: Trenton

IMIS NO.: 0000141200

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Wood Preserver

SIC CODE: 2591

RECEIVING WATERBODY: **DIRECT:** Trent River
INDIRECT: Bay of Quinte, Lake Ontario

DESCRIPTION OF ACTIVITY: Wood preserving: Creosote and oil for hardwood railway ties and oil and pentachlorophenol for utility poles.

EFFLUENT CHARACTERISTICS: Contamination by oil and grease, suspended solids, chlorophenol, phenols and low levels of dioxins and furans.

EFFLUENT TREATMENT: Stormwater management system is implemented. Contaminated stormwater is treated via dissolved air floatation clarifier with polymer addition and activated carbon filters. Process wastewater is treated by a Rayex treatment system using ultraviolet light/ozone enhanced oxidation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** Effluent criteria for north an far north outfalls set out in C. of A # 4-204-88-896 dated Feb. 17, 1989. and C of A # 4-0033-88 006 as amended July 18,1989. Phenols 15 ug/L (PHNOL): Oil & Grease : 2 mg/L (SOLEXT); Pentachlorophenol: 10 ug/L (X3PCPH). Effluent criteria for far north outfall discharge to become effective December 1990.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 ug/L for phenols and 15 mg/L for oil & grease are applicable for assessment of south and far north outfalls in 1989.

EXCEEDANCES: Yes. A total of ten Exceedances of Certificate of Approval requirements for phenol and pentachlorophenol at 'north' outfall. A total of seven exceedances of MOE guideline for phenols at 'south' and 'far north outfall'.

REMEDIAL ACTIONS: Control Order issued in March 1988 requiring company to install stormwater treatment system, stormwater management system and leachate collection system. Certificate of Approval for stormwater treatment system issued in Sept. 1988 and system construction completed and operation in December 1988. C of A for stormwater management system issued Oct. 1988 and system construction completed in Dec. 1988 with exception of pump installation. Pump installation and operation completed in 1989. C of A for stormwater management system issued Feb. 1989.

COMMENTS: "South" outfall diverted into treatment system as of February 1989 and discharged via " North" outfall.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/12/91

000014-12-0(0) DOMTAR WOOD PRESERVING TRENTON, P.O.BOX 460 REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - NORTH OUTFALL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	128	70	143	173	173	122	29	73	162	134	463	224	158	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.001	0	0.002	0	0.034	0.003	0.0004	0.001	0.013	0.005	0.012	0.007	0.007	
KG /DAY (PHNOL)	REQUIREMENT	S/C	0.0011	0.0021	0.0026	0.0026	0.0018	0.0004	0.0011	0.0024	0.0020	0.0069	0.0034	0.0022	3
SOLVENT EXTRACT.	ACTUAL	0.043	0.009	0.03	0.1	0.069	0.014	0.017	0.027	0.102	0.171	0.228	0.097	0.076	
KG /DAY (SOLEXT)	REQUIREMENT	S/C	0.14	0.286	0.346	0.346	0.244	0.058	0.146	0.324	0.268	0.926	0.448	0.316	0
PENTACHL PHENOL	ACTUAL	0.004	0	0	0.001	0.044	0.005	0.001	0.008	0.006	0.007	0.166	0.03	0.023	
KG /DAY (X3PCPH)	REQUIREMENT	S/C	0.001	0.001	0.002	0.002	0.001	0.0003	0.001	0.002	0.001	0.005	0.002	0.001	7

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 72% IN 1989.

000014-12-0(0) DOMTAR WOOD PRESERVING TRENTON, P.O.BOX 460 REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - SOUTH OUTFALL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	66												66	
M3 /DAY (FTFLOW)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL	0.003												0.003	
KG /DAY (PHNOL)	REQUIREMENT	0.001												0.001	1
SOLVENT EXTRACT.	ACTUAL	0.061												0.061	
KG /DAY (SOLEXT)	REQUIREMENT	0.99												0.99	0
PENTACHL PHENOL	ACTUAL	0.028												0.028	
KG /DAY (X3PCPH)	REQUIREMENT														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 2, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1989.

000014-12-0(0) DOMTAR WOOD PRESERVING TRENTON, P.O.BOX 460

CONTROL POINT: 0300 DATA FOR 1989 - FAR NORTH OUTFALL REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	33	27	44	41	49	43	24	101		24			42.9	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0	0.005	0.001	0.001	0.001	0.001	0.001	0.001		0.001			0.001	
KG /DAY (PHNOL)	REQUIREMENT	S/C	0.0005	0.0009	0.0008	0.0010	0.0009	0.0005	0.0020		0.0005			0.001	6
SOLVENT EXTRACT.	ACTUAL	0.026	0.009	0.039	0.033	0.034	0.019	0.011	0.066		0.023			0.029	
KG /DAY (SOLEXT)	REQUIREMENT	S/C	0.405	0.66	0.615	0.735	0.645	0.36	1.515		0.36			0.086	0
PENTACHL PHENOL	ACTUAL	0	0	0.001	0.003	0.025	0.005	0	0		0.0002			0.004	
KG /DAY (X3PCPH)	REQUIREMENT														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dow Chemical Canada Inc.
& PLANT LOCATION: Sarnia
IMIS NO.: 0000910109

MOE REGION: Southwest
DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemical Manufacturing
SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Produces solvents, chlorine, caustic, acids, plastics, vinyl chloride and miscellaneous hydrocarbons.

EFFLUENT CHARACTERISTICS: Contains chlorinated and aromatic hydrocarbons, sodium chloride.

EFFLUENT TREATMENT: Secondary treatment including saltwater biotreatment, incineration and retention.

DISCHARGE TYPE: continuous through seven outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: This company converted to MISA monitoring as of October 1989 using 'gross' loadings and should not be compared to the 'net' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality for Oct., Nov. and Dec nor an increase in loading to the river. Rather it reflects a change in the method of calculating the loadings.

MISA Toxicity Results.

The data for nineteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated that all combined effluent discharges and once through cooling water effluents to have been non-acutely lethal to test fish.

03/11/91

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000091-01-0(9)    DOW CHEMICAL CANADA INC.                        PO BOX 3030 SARNIA                                    REPORT DATE: 13 MAR 91
S U M M A R Y  FOR  EMIS. TYPE: 16   FINAL DISCHARGE             DISCHARGED INTO: 02/003/      LAKE ERIE
                    INCLUDES CONTROL POINTS:  0200 0300 0500 0600 0700 0900 1000
                    DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER; GROSS DATA OCTOBER TO DECEMBER                         ANNUAL      TOTAL
FLOW/LOADING        PARAMETERS        JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP     OCT#    NOV #   DEC # AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL       703000   715000   735000   719000   614810   904000   758000   777358   777000   672000   677351  827976  740041
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL          8.1      8.2      8.1      8.1      8.2      8.2      8.3      8.2      8.2      8.0      8.0     7.9     8.1
(PH )               GUIDELINE                                                                                                                          0

ALK TOTAL             ACTUAL            0        0        0        0        0        0        0        0        0                                0
KG /DAY (ALKT )     GUIDELINE

PHENOLS UNF-REAC      ACTUAL          1.3     1.54     1.22     1.76     1.24     1.86      0.9     0.93     0.98       15    11.25       5
KG /DAY (PHNOL )    GUIDELINE         141      143      147      144      123      181      152      155      155      134      135     166               0

RESIDUE PARTIC.       ACTUAL         2390      930     2910     1890     2090     3070     3520     2180     2740     8778     6967    3526
KG /DAY (RSP )      GUIDELINE       10545    10725    11025    10785     9222    13560    11370    11660    11655                                         0

CARBON TOTAL          ACTUAL          330      200      240      230      160      240      250      180      160     1497     1470    2281
KG /DAY (TOC )      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50,   # - MISA DATA, EXCEPTIONS NOTED BELOW
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION
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000091-01-0(9)   DOW CHEMICAL CANADA INC.   PO BOX 3030 SARNIA
CONTROL POINT: 0200 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - 1ST STREET 42" SEWER   REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT#	NOV #	DEC #	AVERAGE	EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	51000	48000	50000	49000	38000	48000	58000	54000	54000	50000	48966	51644	50051	
	GUIDELINE														
PH (PH)	ACTUAL	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.0	8.0	7.9	8.1	
	GUIDELINE														0
ALK TOTAL KG /DAY (ALKT)	ACTUAL	0	0	0	0	0	0	0	0	0				0	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	10	10	120	100	40	0	10	20	100	571	597	201		
	GUIDELINE	765	720	750	735	570	720	870	810	795					0
CARBON TOTAL KG /DAY (TOC)	ACTUAL	20	0	10	10	10	0	0	10	10	103	99.2	127		
	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION

REPORTED VALUES FOR PH OCT TO DEC BASED ON ONE SAMPLE RESULT

000091-01-0(9)   DOW CHEMICAL CANADA INC.   PO BOX 3030 SARNIA
CONTROL POINT: 0300 DATA FOR 1989 - NET LOADINGS - 1ST STREET 48" SEWER   REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	57000	53000	59000	66000	65000	61000	68000	66000	59000				61556	
	GUIDELINE														
PH (PH)	ACTUAL	8.2	8.2	8.1	8.1	8.2	8.2	8.3	8.2	8.2				8.2	
	GUIDELINE														0
ALK TOTAL KG /DAY (ALKT)	ACTUAL	0	0	0	0	0	0	0	0	0				0	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	20	20	30	30	10	20	10	10	40				14	
	GUIDELINE	855	795	885	990	975	915	1020	990	885				923	0
CARBON TOTAL KG /DAY (TOC)	ACTUAL	20	10	10	20	10	10	10	0	10				11	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

THIS CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION

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000091-01-0(9)    DOW CHEMICAL CANADA INC.                         PO BOX 3030 SARNIA                                    REPORT DATE: 13 MAR 91
CONTROL POINT: 0500 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - 1ST STREET SLUICE                             ANNUAL     TOTAL
FLOW/LOADING          PARAMETERS       JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP    OCT#   NOV #  DEC # AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                    ACTUAL       29000   26000   32000   35000   29000   35000   46000   39000   28000   31000   21222   15790   30584
M3 /DAY (FTFLOW)      GUIDELINE

PH                      ACTUAL         8.2     8.1     8.1     8.2     8.2     8.2     8.3     8.3     8.3   8.094   8.107   8.016     8.2
(PH )                 GUIDELINE                                                                                                               0

ALK TOTAL               ACTUAL           0       0       0       0       0       0       0       0       0                               0
KG /DAY (ALKT )       GUIDELINE

RESIDUE PARTIC.         ACTUAL          10      10      60      10      20      10      20      20      10     438     144      79
KG /DAY (RSP )        GUIDELINE        435     390     480     525     435     525     690     585     405                                      0

CARBON TOTAL            ACTUAL          10      10      10      10       0       0       0       0       0      70      46      44
KG /DAY (TOC )        GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50,    # - MISA DATA, EXCEPTIONS NOTED BELOW
****************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION

000091-01-0(9)    DOW CHEMICAL CANADA INC.                         PO BOX 3030 SARNIA                                    REPORT DATE: 13 MAR 91
CONTROL POINT: 0600 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - 2ND STREET SEWER                              ANNUAL     TOTAL
FLOW/LOADING          PARAMETERS       JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP    OCT#   NOV #  DEC # AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                    ACTUAL       56000   57000   71000   74000   81000   77000   60000   62000   58000   64000   48316   61081   64116
M3 /DAY (FTFLOW)      GUIDELINE

PH                      ACTUAL         8.2     8.2     8.1     8.2     8.2     8.2     8.3     8.2     8.2     8.0     7.9     7.8     8.1
(PH )                 GUIDELINE                                                                                                               0

ALK TOTAL               ACTUAL           0       0       0       0       0       0       0       0       0                               0
KG /DAY (ALKT )       GUIDELINE

RESIDUE PARTIC.         ACTUAL          70      10      90      90      70      20      50      30      60     933     613     270
KG /DAY (RSP )        GUIDELINE        840     855    1070    1110    1220    1160     900     930     843                                      0

CARBON TOTAL            ACTUAL         120      10      20      30      20      10      10      10      10     153     119     149
KG /DAY (TOC )        GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50,    # - MISA DATA, EXCEPTIONS NOTED BELOW
****************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION
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000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
CONTROL POINT: 0700 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - 4TH STREET SEWER REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT#	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	85000	84000	82000	85000	76000	88000	88000	93000	95000	86000	85417	102140	87463	
PH (PH)	ACTUAL GUIDELINE	8.2	8.2	8.1	8.1	8.2	8.2	8.3	8.3	8.3	8.0	8.0	7.9	8.1	0
ALK TOTAL KG /DAY (ALKT)	ACTUAL GUIDELINE	0	0	0	0	0	0	0	0	0				0	
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL GUIDELINE	0.02 0.2200	0.06 0.2200	0.02 0.2000	0.04 0.1200	0.05 0.1362	0.06 0.2600	0 0.2600	0.07 0.2872	0.04 0.3000				0.04 0.2226	8
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL GUIDELINE	610 1280	290 1260	530 1230	160 1280	400 1140	180 1320	160 1320	40 1400	40 1380	756	576	539		0
CARBON TOTAL KG /DAY (TOC)	ACTUAL GUIDELINE	30	10	50	20	10	0	0	10	10	182	165	245		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
CONTROL POINT: 0900 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - 4TH STREET SEWER REPORT DATE: 10 APR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT#	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	414000	436000	431000	404000	319000	582000	425000	449000	468000	441000	473430	597321	453313	
PH (PH)	ACTUAL GUIDELINE	8.1	8.2	8.1	8.2	8.3	8.3	8.3	8.3	8.3	8.1	8.0	7.9	8.2	0
ALK TOTAL KG /DAY (ALKT)	ACTUAL GUIDELINE	0	0	0	0	0	0	0	0	0				0	
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL GUIDELINE	1.28 8.28	1.48 8.72	1.2 8.62	1.72 8.08	1.19 6.38	1.8 11.64	0.9 8.5	0.86 8.98	0.94 9.36	15 8.82	11.25 9.47	5 11.95		0
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL GUIDELINE	1660 6210	590 6540	2070 6470	1500 6060	1540 5580	2830 8730	3250 6380	2460 6740	2040 6780	6080	5037	2436		0
CARBON TOTAL KG /DAY (TOC)	ACTUAL GUIDELINE	130	160	140	140	110	220	230	150	120	989	1040	1717		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

ALKT IS NOT MONITORED UNDER MISA MONITORING REGULATION

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 13 MAR 91

CONTROL POINT: 1000 DATA FOR 1989 - NET LOADINGS JAN TO SEP, GROSS DATA OCT TO DEC - P.P. EFF

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT#	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	11000	11000	10000	6000	6810	13000	13000	14358	15000				11130	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	8.1	7.9	8.1	8.1	8.1	8.3	8.3	8.2				8.2	
(PH)	GUIDELINE														0
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	10	0	10	0	10	10	20	20	30				12	
KG /DAY (RSP)	GUIDELINE	1.275	1.26	1.23	1.275	1.14	1.32	1.32	1.395	1.23				1.272	9
CARBON TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1989.

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/003/ LAKE ERIE REPORT DATE: 13 MAR 91
INCLUDES CONTROL POINTS: 0200 0300 0500 0600 0700 0900 1000
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	703000	715000	735000	719000	667810	904000	758000	777350	780000				751018	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.2	8.1	8.1	8.2	8.2	8.3	8.2	8.2				8.2	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	1.44	1.75	1.48	1.9	1.95	2.42	1.01	1.11	1.01				1.563	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7242	5444	4917	4431	5960	7242	5948	7634	8292				6346	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	1582	1254	1468	1298	1221	1831	1630	1748	1691				1525	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS - 1ST STREET 42IN SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	51000	48000	50000	49000	38000	48000	58000	54000	54000				50000	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.1	8.1				8.11	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	399	321	290	342	368	359	765	694	494				448	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	110	76	90	83	78	91	117	123	99				96	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS LOADINGS - 1ST STREET 48IN SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	57000	53000	59000	66000	65000	61000	68000	66000	62000				61889	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.2	8.2	8.1	8.1	8.2	8.2	8.3	8.2	8.2				8.19	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	460	326	209	349	572	476	889	828	508				513	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	124	84	111	115	126	125	138	142	109				119	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
CONTROL POINT: 0500 DATA FOR 1989 - GROSS LOADINGS - FIRST STREET SLUICE
REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	29000	26000	32000	35000	29000	35000	46000	39000	28000				24917	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.2	8.1	8.1	8.2	8.2	8.2	8.3	8.3	8.3				8.21	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	226	181	162	183	271	272	630	514	313				306	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	67	52	64	63	58	70	87	86	62				68	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
CONTROL POINT: 0600 DATA FOR 1989 - GROSS LOADINGS - SECOND STREET SEWER
REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	56000	57000	71000	74000	81000	77000	60000	62000	58000				49666.66	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.2	8.2	8.1	8.2	8.2	8.2	8.3	8.2	8.2				8.2	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	506	362	307	455	784	608	591	816	534				551	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	202	108	142	141	162	170	126	143	139				148	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0700 DATA FOR 1989 - GROSS LOADINGS - 3RD STREET SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	85000	84000	82000	85000	76000	88000	88000	93000	95000				85.9	
	GUIDELINE														
PH (PH)	ACTUAL	8.2	8.2	8.1	8.1	8.2	8.2	8.3	8.3	8.3				8.21	
	GUIDELINE														
ALK TOTAL KG /DAY (ALKT)	ACTUAL	0	0	0	0	0	0	0	0	0				0	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL	0.03	0.09	0.04	0.06	0.09	0.09	0.03	0.09	0.05				0.063	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	178	362	666	271	468	290	304	226	314				342	
	GUIDELINE														
CARBON TOTAL KG /DAY (TOC)	ACTUAL	181	131	190	140	142	164	172	207	171				166	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0900 DATA FOR 1989 - GROSS LOADINGS - 4TH STREET SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	414000	436000	431000	404000	372000	582000	425000	449000	468000				442333	
	GUIDELINE														
PH (PH)	ACTUAL	8.1	8.2	8.1	8.2	8.3	8.3	8.3	8.3	8.3				8.23	
	GUIDELINE														
ALK TOTAL KG /DAY (ALKT)	ACTUAL	0	0	0	0	0	0	0	0	0				0	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL	1.41	1.66	1.44	1.84	1.86	2.33	0.98	1.02	0.96				1.50	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	4924	3527	3036	2438	2763	4637	2190	3780	5626				3658	
	GUIDELINE														
CARBON TOTAL KG /DAY (TOC)	ACTUAL	876	786	852	747	643	1188	966	1018	1091				908	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

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THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000091-01-0(9) DOW CHEMICAL CANADA INC. PO BOX 3030 SARNIA
CONTROL POINT: 1000 DATA FOR 1989 - GROSS LOADINGS - P.P. EFF REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	11000	11000	10000	6000	6810	13000	13000	14350	15000				11129	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	8.1	7.9	8.1	8.1	8.3	8.3	8.3	8.3				8.21	
(PH)	GUIDELINE														
ALK TOTAL	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (ALKT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	549	365	247	391	735	599	580	776	503				0.268	
KG /DAY (RSP)	GUIDELINE														
CARBON TOTAL	ACTUAL	22	17	18	10	12	23	24	29	21				0.016	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS -

THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dupont Canada Inc.
& PLANT LOCATION: Corunna
IMIS NO.: 0000080309

MOE REGION: Southwest
DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemical Manufacturing
SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock (ethylene) from the petroleum refineries in Sarnia is used to make high and linear low density polyethelyene.

EFFLUENT CHARACTERISTICS: Contains cyclohexane and phenols.

EFFLUENT TREATMENT: Physical.

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS: This company converted to MISA monitoring as of October 1989 using 'gross' loadings and should not be compared to the 'net' loadings of previous years. The reported increase in loadings does not imply a decrease in effluent quality for Oct., Nov. and Dec. nor an increase in loading to the river. Rather it reflects a change in the method of calculating the loadings.

MISA Toxicity Results.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/11/91

000008-03-0(9) DU PONT CANADA INC. (ST. CLAIR RIVER SITE) CORUNNA REPORT DATE: 14 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - NET LOADINGS JAN TO SEP - GROSS DATA OCT TO DEC

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	40608	40608	40608	41472	45792	52704	57456	65059	58406	54587	50093	41900	49108	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.2	0.18	0.08	0.08	0.13	0.02	0.07	0.12	0.44	0.35	0.15	0.09		
KG /DAY (PHNOL)	GUIDELINE	0.812	0.812	0.812	0.829	0.916	1.05	1.15	1.3	1.17	11	10	8		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000008-03-0(9) DU PONT CANADA INC. (ST. CLAIR RIVER SITE) CORUNNA REPORT DATE: 22 JAN 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	40608	40608	40608	41472	45792	52704	57456	65059.2	58406.4				49190	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.2	0.18	0.13	0.21	0.13	0.11	0.14	0.24	0.58				0.21	
KG /DAY (PHNOL)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA

GROSS LOADINGS PRESENTED FOR COMPARISON PURPOSES ONLY

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dupont Canada Inc., (Kingston Site)
& PLANT LOCATION: Kingston Twp.

IMIS NO.: 0000080101

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals Manufacturing

SIC CODE: 1811

RECEIVING WATERBODY: **DIRECT:** 0.9 Km to Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Adipic acid and Hexamethlyenediamine are reacted to form a synthetic-nylon.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics such as phenols,Dowtherm ®.

EFFLUENT TREATMENT: Partial settling.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 20 ppb for phenols (PHNOL)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

MISA Toxicity Results.

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the service sewer combined effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure were 81.0 and 64.3 % The other sample was determined to have been non-acutely lethal.

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the catch tank combined effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure were 51.0 % and 42.7 % The other sample was determined to have been non-acutely lethal.

03/12/91

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000008-01-0(1)    DU PONT CANADA INC. (KINGSTON SITE)              KINGSTON                                                     REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                       ANNUAL    TOTAL
FLOW/LOADING         PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL           20264    18229    20535    19583    27626    42769    49157    50909    49929  31053.2    30036  22007.3    31841
M3 /DAY (FTFLOW)     GUIDELINE

PH                    ACTUAL            8.19     8.13     8.47     8.11     8.03     7.86     7.94     7.91     7.96     8.08     8.04     8.03     8.06
(PH )                GUIDELINE                                                                                                                             0

PHENOLS UNF-REAC      ACTUAL               0        0    0.011        0    0.008        0        0        0        0     0.19    0.004     0.05    0.022
KG /DAY (PHNOL )     GUIDELINE         0.405    0.365    0.411    0.392    0.553    0.855    0.983     1.02    0.999    0.621    0.601     0.44    0.637        0

CARBON TOTAL          ACTUAL             300      242      256    155.6    208.6      312      379    259.6      145       95    162.5      132      221
KG /DAY (TOC )       GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
*********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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000008-01-0(1)    DU PONT CANADA INC. (KINGSTON SITE)              KINGSTON                                                     REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989                                                                                                       ANNUAL    TOTAL
FLOW/LOADING         PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL           20264    18229    20535    19583    27626    42769    49157    50909    49929  46573.4    30036  22007.3    33135
M3 /DAY (FTFLOW)     GUIDELINE

PH                    ACTUAL            8.07     8.19     8.19     8.12     8.14     7.86     7.95     7.95     7.92     8.11      8.2     8.31     8.08
(PH )                GUIDELINE                                                                                                                             0

PHENOLS UNF-REAC      ACTUAL               0        0        0        0    0.023        0        0        0        0     0.01    0.004     0.08     0.01
KG /DAY (PHNOL )     GUIDELINE         0.405    0.365    0.411    0.392    0.553    0.855    0.983     1.02    0.999    0.932    0.601     0.44    0.663        0

CARBON TOTAL          ACTUAL             231      215      131     66.6    168.5      316      398      224      110      299    157.4    122.8      203
KG /DAY (TOC )       GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
*********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Dupont Canada Inc.
& PLANT LOCATION: Maitland

IMIS NO.: 0000080002

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Organic Chemicals Manufacturing

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Cyclohexane is converted into adipic acid; adiponitrile is converted to hexamethyle diamine; also produces spandex yarn, hydrogen peroxide, chlorofluorocarbons and engineering polymers.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble organics.

EFFLUENT TREATMENT: Activated sludge, with nitrification/denitrification.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial) of 15 mg/L for BOD and 15 mg/L for suspended solids (RSP -residue particulate)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Effluent consists of separate outfalls for STP and cooling water - activated sludge plant effluent.

Toxicity results obtained under the MISA program are:

The data for two of three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been marginally lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure were greater than 100 %. An audit sample conducted by MOE indicated this effluent to have been acutely lethal with a 96 hour LC50 of 70.1 %.

07/22/89

```
000008-00-0(2)    DU PONT CANADA INC. (MAITLAND SITE)                     MAITLAND                                                                   REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA                                                                                                                   ANNUAL      TOTAL
FLOW/LOADING           PARAMETERS            JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC   AVERAGE EXCEEDANCES
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                     ACTUAL           145700    145200    154800    169900    188100    211400    246100    240400    254400    141700    168200    179500    187117
M3 /DAY (FTFLOW)       GUIDELINE

BOD 5 DAY                ACTUAL            429.5     636.8    1096.4     952.5       608     905.3    1027.1    1150.1     909.6     827.9    1414.6    1256.7       935
KG /DAY (BOD5 )        GUIDELINE          2185.5      2178      2322    2548.5    2821.5      3171    3691.5      3606      3816    2125.5      2523    2692.5      2807           0

KJELDAHL ORGANIC         ACTUAL            412.1     206.5     289.8     543.9     237.1      81.9     143.8     238.1     107.7     224.4     264.7     561.3       276
KG /DAY (NNKUR )       GUIDELINE

RESIDUE PARTIC.          ACTUAL            592.2     135.6    1670.7      1571     977.6     940.9    1622.4    2100.1    3161.9    1051.9    1004.2    2001.9      1403
KG /DAY (RSP )         GUIDELINE          2185.5      2178      2322    2548.5    2821.5      3171    3691.5      3606      3816    2125.5      2523    2692.5      2807           0

CARBON TOTAL             ACTUAL            726.6     930.8     936.2     672.2     492.6       627     702.1     704.9     668.4     612.3     949.8    2050.9       839
KG /DAY (TOC )         GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS         -
*************************************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

THIS CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION

000008-00-0(2)    DU PONT CANADA INC. (MAITLAND SITE)                     MAITLAND                                                                   REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS DATA                                                                                                                   ANNUAL      TOTAL
FLOW/LOADING           PARAMETERS            JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC   AVERAGE EXCEEDANCES
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                     ACTUAL              230       280       300       420       380       290       390       290       350       310       240       180       305
M3 /DAY (FTFLOW)       GUIDELINE

KJELDAHL ORGANIC         ACTUAL                2       1.2       1.5         2       0.9       1.4       0.6       0.6       1.6       0.5       2.6       3.8      1.56
KG /DAY (NNKUR )       GUIDELINE

CARBON TOTAL             ACTUAL                0       2.2       2.5       0.6       0.9       3.3       1.7       1.3       1.1       1.9       3.5       1.8      1.73
KG /DAY (TOC )         GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS         -
*************************************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF   0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

THIS CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Eastmaque Gold Mines Ltd.
& PLANT LOCATION: Kirkland Lake

IMIS NO.: 0111350005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT:
INDIRECT:

DESCRIPTION OF ACTIVITY: 1820 metric tonne flotation mill reprocessing old gold mine tailings to produce a gold concentrate.

EFFLUENT CHARACTERISTICS: contains suspended solids, nickel, copper, lead, zinc, arsenic, phenols, phosphorus.

EFFLUENT TREATMENT: settling of tailings in retention pond.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): March 29, 1989.

EXCEEDANCES: suspended Solids (3).

REMEDIAL ACTIONS: Action was taken to prevent short circuiting in 1989 and 1990.

COMMENTS: Suspended Solids exceedances occurred in March, April and May. This was caused by short circuiting in the tailings management system.

Two trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/13/91

011135-00-0(5)   EASTMAQUE GOLD MINES LTD   KIRKLAND LAKE   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0	0.01	0.02	0.01	0	0	0	0	0	0	0	0	0.003	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER UNF.TOT.	ACTUAL	0	0	0	0	0.01	0	0	0.01	0	0	0	0.01	0.003	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.23	0.16	0.16	0.014	0.11	0.46	0.05	0.02	0.11	0.06	0.14	0.4	0.160	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL									0	0	0	0	0	
MG/L (NNH3FR)	GUIDELINE									10	10	10	10	10	0
LEAD UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0.02	0	0	0	0.002	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.28	7.55	7.39	7.28	7.47	7.79	7.76	7.49	7.25	7.45	7.34	7.3	7.45	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	4.67	4.25	16.13	34.42	49.67	13	1.75	1	3.75	7.17	6.78	10.5	12.8	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	3
ZINC UNF.TOT.	ACTUAL	0.12	0.32	0.2	0	0.01	0.02	0.02	0.01	0.01	0.01	0	0	0.06	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 101, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: E. B. Eddy Forest Products Ltd.
& PLANT LOCATION: Espanola

IMIS NO.: 0000980003

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Spanish River
INDIRECT: 47 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs and chips are converted by the bleached kraft pulping process into pulp and paper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and dissolved organic compounds.

EFFLUENT TREATMENT: Two clarifiers on paper machine effluents; the total effluent is treated by settling basins, an aeration lagoon and a settling lagoon. Foul condensates are steam stripped to remove odourous organics. In-mill recovery systems remove bark fines and fibre in the wastewaters from pulp washing, paper machine and bleaching areas.

DISCHARGE TYPE:

COMPANY LIMITS SET BY: CONTROL ORDER November 7,1989 (EFFECTIVE DATE): The BOD limit is 10.4 tonnes on any one day and not to exceed 6.0 tonnes per day averaged over any 30 consecutive working day. The Suspended Solids limit is 12.9 tonnes on any one day and not to exceed 7.5 tonnes per day averaged over any 30 consecutive days.

EXCEEDANCES: None. In compliance with Control Order.

REMEDIAL ACTIONS:

COMMENTS:

03/13/91

000098-00-0(3) E.B. EDDY FOREST PRODUCTS LTD. ESPANOLA REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	113000	111200	112900	96500	118200	129500	126200	132800	110000	110300	103000	92900	113042	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.3	7.3	7.6	7.1	7.1	7.1	6.8	7.1	7.2	7.3	7.3	7.2	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	1800	1900	2000	2000	2000	1600	1300	1300	1200	1300	1400	1600	1617	
KG /DAY (BOD5)	REQUIREMENT	3630	3630	3630	3630	3630	3630	3630	3630	3630	3630	S/C	S/C	3630	0
RESIDUE PARTIC.	ACTUAL	7200	6200	6400	3900	3400	3600	3100	2200	2400	2500	2100	3500	3875	
KG /DAY (RSP)	GUIDELINE	10600	10600	10600	10600	10600	10600	10600	10600	10600	10600	S/C	S/C	10600	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORC OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: E.B. Eddy Forest Products Ltd.
& PLANT LOCATION: Ottawa

IMIS NO.: 0000980201

MOE REGION: Southeast

DISTRICT: Ottawa

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Ottawa River
INDIRECT: St. Lawrence River

DESCRIPTION OF ACTIVITY: Converts pulp into paper for writing and printing.

EFFLUENT CHARACTERISTICS: Contains suspended solids (paper) and trace organics.

EFFLUENT TREATMENT: Three "Savealls", whitewater recycle systems and a clarifier remove solids.

DISCHARGE TYPE: Continuous through a discharge pipe.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (May 1978) The Control Order specifies that E. B. Eddy cannot exceed 9 lbs of suspended solids discharged per ton of saleable product.

MOE OR FEDERAL GUIDELINES: (May 1978) MOE guideline for BOD5 is 1200 kg/day.

EXCEEDANCES: Yes. Exceeded Control Order twice. Eleven monthly exceedances of BOD5 guideline.

REMEDIAL ACTIONS: Company has submitted a proposal for meeting requirements. The proposal is presently under review by Ministry staff. A new control order is under development.

COMMENTS:

03/13/91

000098-02-0(1) E.B. EDDY FOREST PRODUCTS LTD. OTTAWA REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	7843	8120	7991	7335	7908	8369	9767	8463	9217	9223	8570	8433	8437	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1458	1393	1665	1409	1143	1071	1359	1308	1481	1454	1495	1596	1403	
KG /DAY (BOD5)	GUIDELINE	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	11
RESIDUE PARTIC.	ACTUAL	601	594	664	454	700	344	391	464	717	695	569	742	578	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Esso Chemical Canada Ltd. Sarnia

IMIS NO.: 0000070201

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals Manufacturing

SIC CODE: 3712, 3731

RECEIVING WATERBODY: **DIRECT**: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Polymerizes ethylene produced from natural gas and feed from petroleum refinery to produce polyethylene. Polymerizes vinyl chloride monomer to produce polyvinyl chloride. Fractionates feed from refinery to produce benzene, toluene and xylene.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble hydrocarbons.

EFFLUENT TREATMENT: Physical and chemical including carbon adsorption.

DISCHARGE TYPE: continuous through an extended outfall

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES**: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial

EXCEEDANCES: None

REMEDIAL ACTIONS: None required as company in compliance with standards.

COMMENTS: This company converted to MISA monitoring as of October 1989 using 'gross' loadings and should not be compared to the 'net' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in the effluent quality for Oct., Nov. and Dec. nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

MISA Toxicity Results.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/11/91

000007-02-0(1) ESSO CHEMICAL CANADA SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - NET LOADINGS JAN TO SEP, MISA GROSS DATA OCT TO DEC

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	29400	29200	30300	29000	27300	28700	31500	34700	32000	30854	28820	27981	29980	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.2	7.6	7.7	7.9	7.8	8	8	8.1	7.9	8.1	8		
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.05	0.035	0.018	0.017	0.027	0.089	0.015	0.021	0.016	0.063	0.061	0.095		
KG /DAY (PHNOL)	GUIDELINE	0.588	0.584	0.606	0.58	0.546	0.574	0.63	0.694	0.64	0.617	0.576	0.560		0
NH3-N TOTAL	ACTUAL	8.8	8.8	12.1	14.5	8.2	5.7	6.3	6.9	6.4	N/A	2.9	N/A	8.1	
KG /DAY (NNHTFR)	GUIDELINE														
RESIDUE FILTERD	ACTUAL	1425	823	3209	870	860	2506	1115	1516	1491				1535	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	270.5	189.8	200	272.6	281.2	241.1	192.2	156.2	6.4	193	318	133		
KG /DAY (RSP)	GUIDELINE	443	438	455	435	410	431	473	521	480					0
SOLVENT EXTRACT.	ACTUAL	5.9	8.8	9.1	5.8	19.1	20.1	15.8	24.3	22.4	34.6	36	29.9		
KG /DAY (SOLEXT)	GUIDELINE	441	438	455	435	410	431	473	521	480	463	432	420		0
SULPHIDE UNF REC	ACTUAL	0	0	0	0	0	0	0	0	0				0	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	141.1	186.9	203	188.5	111.9	120.5	116.6	166.6	150.4	246	236	246		
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONLTY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989

000007-02-0(1) ESSO CHEMICAL CANADA SARNIA REPORT DATE: 13 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS LOADINGS JAN TO DEC

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	29400	29200	30300	29000	27300	28700	31500	34700	32000				30233	
	GUIDELINE														
PH (PH)	ACTUAL	7.6	7.2	7.6	7.7	7.9	7.8	8	8	8.1				7.8	
	GUIDELINE														
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL	0.079	0.053	0.042	0.035	0.044	0.1	0.028	0.021	0.016				0.046	
	GUIDELINE														
NH3-N TOTAL KG /DAY (NNHTFR)	ACTUAL	8.1	11.7	18.2	20	10.9	8.6	12.6	10.4	9.6				12.2	
	GUIDELINE														
RESIDUE FILTERD KG /DAY (RSF)	ACTUAL	3522	4430	6421	3950	4147	5878	5210	5153	6051				4974	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	417	371	361	400	396	318	359	340	240				356	
	GUIDELINE														
SOLVENT EXTRACT. KG /DAY (SOLEXT)	ACTUAL	17.6	23.4	24.2	26.1	35.5	28.7	22.1	27.8	28.8				26.0	
	GUIDELINE														
SULPHIDE UNF REC KG /DAY (SSIDUR)	ACTUAL	0	0	0	0	0	0	0	0	0				0	
	GUIDELINE														
CARBON TOTAL KG /DAY (TOC)	ACTUAL	329	315	324	316	265	261	201	267	237				279	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW
****
THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Esso Petroleum Canada (Nanticoke Refinery)
(previously reported as Texaco Canada Inc.)
Jarvis

IMIS NO.: 0000520205

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk/Brant

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: **DIRECT:** Lake Erie.
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Primary oil separation, equalization, dissolved air flotation, biological treatment, clarification and filtration, and final holding ponds.

DISCHARGE TYPE: continuous through a submerged diffuser

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Federal Petroleum Refinery Regulations and Guidelines.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Degree of air cooling is maximized. Actual results reported are MISA GROSS data, previous years were IMIS NET data. MISA GROSS data should not be compared to previous years.

The data for fourteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish.

07/22/89

000052-02-0(5) ESSO PETROLEUM CANADA NANTICOKE REPORT DATE: 13 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	6202	7903	6205	7941	7719	6734	6347	6017	6404	6345	6557	5649	6669	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.82	7.89	7.85	7.69	7.66	7.71	7.79	7.85	7.77	7.68	7.54	7.69	7.75	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	0.61	0.5	0.35	1.56	1.82	10.22	2.04	0.86	0.75	1.47	2.54	5.06	2.32	
KG /DA/ (NNHTFR)	GUIDELINE	62.02	79.03	62.05	79.41	77.19	67.34	63.47	60.17	64.04	63.45	65.57	56.49	66.69	0
PHENOLS UNF-REAC	ACTUAL	0.02	0.02	0.03	0.03	0.05	0.03	0.03	0.02	0.03	0.02	0.02	0.04	0.03	
KG /DAY (PHNOL)	GUIDELINE	0.12	0.16	0.12	0.16	0.15	0.13	0.13	0.12	0.13	0.13	0.13	0.11	0.13	0
RESIDUE PARTIC.	ACTUAL	50.56	41.06	37.65	65.69	53.08	49.51	39.71	39.11	56.42	25.59	49.14	72.27	48.32	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	18.54	13.43	11.2	15.48	10.54	17.79	9.41	9.13	8.53	6.42	12.21	25.71	13.20	
KG /DAY (SOLEXT)	GUIDELINE	62.02	79.03	62.05	79.41	77.19	67.34	63.47	60.17	64.04	63.45	65.57	56.49	66.69	0
SULPHIDE UNF.REAC	ACTUAL	0.31	0.41	0.17	0.26	0.23	0.28	0.27	0.21	0.23	0.21	0.26	0.34	0.27	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL			61.46	36.45	35.92	59.59	38.81	31.77	48.73	51.08	51.55		41.54	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

REPORTED VALUES FOR SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Esso Petroleum Canada, Sarnia

IMIS NO.: 0000070102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 3652

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at the parts per billion range.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation prior to discharge to the St. Clair River. Process and essentially all storm water receives both primary and secondary (biological) treatment before discharge. High strength wastewaters and effluent from the sour water stripper are biologically pretreated before discharge to the activated sludge process. Other wastewaters are filtered by sand and anthracite before discharge to the activated sludge process.

DISCHARGE TYPE: continuous through three outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Component of MISA program.

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings. Summary data page A-58A was reported in previous years as NET data under control point 0200. The data reported for 1989 should not be compared to previous years.

The data for fourteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish.

02/11/91

000007-01-0(2) ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD. PO BOX 3004 SARNIA REPORT DATE: 18 MAR 91

S U M M A R Y INCLUDES CONTROL POINTS 0300 0400 0500 0600 - GROSS LOADINGS

DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR #	APR	MAY	JUN	JUL	AUG	SEP #	OCT #	NOV	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	188496	222488	111861	209662	269852	266140	208611	216389	172953	130628	211569	25312	186163	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.54	7.51	7.49	7.57	7.7	7.72	7.73	7.73	7.77	7.76	7.71	7.38	7.63	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	27.66	65.87	22.44	88.77	86.67	42.53	77.42	60.27	27.91	33.56	48.38	0	48.46	
KG /DAY (NNHTFR)	GUIDELINE	1885	2225	1119	2097	2699	2661	2086	2164	1730	1306	2116	253	1862	0
PHENOLS UNF-REAC	ACTUAL	0.52	0.49	0.24	0.43	0.58	0.58	0.44	0.45	0.35	0.28	0.55	0.14	0.42	
KG /DAY (PHNOL)	GUIDELINE	3.77	4.45	2.24	4.19	5.40	5.32	4.17	4.33	3.46	2.61	4.23	0.51	3.72	0
RESIDUE PARTIC.	ACTUAL	1112	817	486	1513	579	494	1101	1259	848	2082	5380	0	1306	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	197	225	114	230	274	459	208	216	174	134	212	0	204	
KG /DAY (SOLEXT)	GUIDELINE	1885	2225	1119	2097	2699	2661	2086	2164	1730	1306	2116	253	1862	0
SULPHIDE UNF.REAC	ACTUAL	3.98	4.53	2.40	5.06	5.90	7.84	21.33	4.95	3.50	2.37	4.45	0	6	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	839	596	407	464	781	907	422	441	502	431	483	0	523	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

IN PREVIOUS YEARS THIS DATA SUMMARY TABLE WAS REPORTED AS CONTROL POINT 0200

REPORTED VALUES ON SUMMARY PAGE ARE LOWER TO DATA NOT AVAILABLE TO INDIVIDUAL CONTROL POINTS. SEE FOLLOWING PAGES

000007-01-0(2)   ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD.   PO BOX 3004   SARNIA
CONTROL POINT: 0300 DATA FOR 1989 - GROSS LOADINGS - BIOX EFFLUENT
REPORT DATE: 13 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	26270	25295	22061	24282	32249	31370	30761	29695	33079	28556	27296	25312	28019	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.54	7.51	7.49	7.57	7.7	7.72	7.73	7.73	7.77	7.76	7.71	7.38	7.63	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	8.19	42.21	11.66	14.66	15.39	14.36	24.06	8.89	11.13	13.16	11.56		15.93	
KG /DAY (NNHTFR)	GUIDELINE	262.7	252.95	220.61	242.82	322.49	313.7	307.61	296.95	330.79	285.56	272.96		282.65	0
PHENOLS UNF-REAC	ACTUAL	0.13	0.09	0.06	0.06	0.1	0.11	0.08	0.08	0.07	0.08	0.18	0.14	0.10	
KG /DAY (PHNOL)	GUIDELINE	0.53	0.51	0.44	0.49	0.64	0.63	0.62	0.59	0.66	0.57	0.55	0.51	0.56	0
RESIDUE PARTIC.	ACTUAL	440.47	358.79	234.91	308.32	341.08	259.12	318.96	382.47	450.78	367.32	390.07		350.21	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	34.92	27.51	24.09	44.15	36.38	31.25	30.49	29.55	34.04	31.97	28.05		32.04	
KG /DAY (SOLEXT)	GUIDELINE	262.7	252.95	220.61	242.82	322.49	313.7	307.61	296.95	330.79	285.56	272.96		282.65	0
SULPHIDE UNF.REAC	ACTUAL	0.73	0.59	0.6	1.35	1.15	3.14	0.91	1.21	0.7	2.37	0.77		1.23	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	345.11	375.18	369.05	357.23	437.7	445.04	302	356.98	376.33	324.56	359.35		368.05	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 46, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

000007-01-0(2) ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD. PO BOX 3004 SARNIA REPORT DATE: 14 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS LOADINGS - COOLING WATER FROM #11,12 SEPARATOR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	30626	55303		58390	70803	69870	42168	53467			65025		55707	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	3.68	6.64		17.52	21.24	8.38	12.65	16.04			13.01		12.39	
KG /DAY (NNHTFR)	GUIDELINE	306	553		584	708	699	422	535			650		557	0
PHENOLS UNF-REAC	ACTUAL	0.123	0.111		0.117	0.142	0.14	0.084	0.107			0.13		0.12	
KG /DAY (PHNOL)	GUIDELINE	0.613	1.106		1.168	1.416	1.397	0.843	1.069			1.301		1.114	0
RESIDUE PARTIC.	ACTUAL	88.8	55.3		327.0	70.8	69.9	227.7	133.7			1209.5		272.8	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	30.63	55.30		58.39	70.80	76.86	42.17	53.47			65.03		56.58	
KG /DAY (SOLEXT)	GUIDELINE	306	553		584	708	699	422	535			650		557	0
SULPHIDE UNF.REAC	ACTUAL	0.613	1.106		1.168	1.416	1.397	17.711	1.069			1.3		3.22	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	306	211		175	566	629	84	136			202		288.77	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

MONTHLY AVERAGE LOADINGS CALCULATED FROM ONE SAMPLE RESULT

000007-01-0(2)   ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD.   PO BOX 3004 SARNIA
CONTROL POINT: 0500 DATA FOR 1989 - GROSS LOADINGS - COOLING WATER FROM #9 SEPARATOR
REPORT DATE: 15 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	77000	87330	52600	92490	124400	114000	85572	86349	85870	64224	81278		86465	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	9.24	10.48	6.31	46.25	37.32	13.68	25.67	25.97	10.30	12.84	16.26		19.48	
KG /DAY (NHNTFR)	GUIDELINE	770	873	526	925	1244	1140	856	863	859	642	813		865	0
PHENOLS UNF-REAC	ACTUAL	0.15	0.18	0.11	0.19	0.25	0.23	0.17	0.17	0.17	0.13	0.16		0.17	
KG /DAY (PHNOL)	GUIDELINE	1.54	1.75	1.05	1.85	2.49	2.28	1.71	1.73	1.72	1.28	1.63		1.73	0
RESIDUE PARTIC.	ACTUAL	277	288	147	657	124	114	274	589	283	1272	2715		613	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	77.0	87.3	52.6	92.5	124.4	285.0	85.6	86.5	85.9	64.2	81.3		102.0	
KG /DAY (SOLEXT)	GUIDELINE	770	873	526	925	1244	1140	856	863	859	642	813		865	0
SULPHIDE UNF.REAC	ACTUAL	1.54	1.75	1.05	1.85	2.49	2.28	1.71	1.73	1.72	0.001	1.63		1.61	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	616	524	105	277	622	1026	86	241	223	245	276		386	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

MONTHLY AVERAGE LOADINGS CALCULATED FROM ONE SAMPLE RESULT

000007-01-0(2)   ESSO PETROLEUM CANADA A DIV. OF IMPERIAL OIL LTD.   PO BOX 3004 SARNIA   REPORT DATE: 14 MAR 91
CONTROL POINT: 0600 DATA FOR 1989 - GROSS LOADINGS - COOLING WATER FROM #3 SEPARATOR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	54600	54560	37200	34500	42400	50900	50110	46878	54004	37848	37970		45543	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	6.55	6.55	4.46	10.35	12.72	6.11	15.03	9.38	6.48	7.56	7.56		8.43	
KG /DAY (NNHTFR)	GUIDELINE	546	546	372	345	424	509	501	469	540	378	380		455	0
PHENOLS UNF-REAC	ACTUAL	0.11	0.11	0.07	0.07	0.09	0.10	0.10	0.09	0.11	0.08	0.08		0.09	
KG /DAY (PHNOL)	GUIDELINE	1.09	1.09	0.74	0.69	0.85	1.02	1.00	0.94	1.08	0.76	0.76		0.91	0
RESIDUE PARTIC.	ACTUAL	306	115	104	221	42	51	281	155	113	443	1066		263	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	54.6	54.6	37.2	34.5	42.4	66.2	50.1	46.9	54.0	37.8	37.8		46.9	
KG /DAY (SOLEXT)	GUIDELINE	546	546	372	345	424	509	501	469	540	378	380		455	0
SULPHIDE UNF.REAC	ACTUAL	1.09	1.09	0.74	0.69	0.85	1.02	1.00	0.94	1.08	0.001	0.76		0.93	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	491	218	37	104	339	458	100	81	124	106	121		198	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

MONTHLY AVERAGE LOADINGS CALCULATED FROM ONE SAMPLE RESULT

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Essroc Canada Inc.
(previously reported as Lake Ontario Cement)
& PLANT LOCATION: Picton

IMIS NO.: 0041860008

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Industrial Minerals (Cement Manufacture)

SIC CODE:

RECEIVING WATERBODY: DIRECT: Picton Bay
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Cement Manufacture

EFFLUENT CHARACTERISTICS: BOD5, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: Napier Reid package mechanical treatment plant.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Operational objectives for secondary mechanical treatment plant BOD5 and suspended solids (RSP) 25 mg/L are assessed on an annual average. Total phosphorus (PPUT) 1 mg/L is assessed on a monthly basis.

EXCEEDANCES: Yes. Seven exceedances of RSP on monthly basis; fails annual average.

REMEDIAL ACTIONS: The company is assessing feasibility of utilizing a closed loop, totally recirculated wastewater stream (no off-site discharge), using the South Quarry as a reservoir and settling/treatment area. Remediation of manholes initiated to exclude extraneous flows.

COMMENTS: The particulate in the waste stream does not result from inadequacies in the sewage treatment facilities. Storm drainage combines with the treatment plant effluent prior to discharge to the lake. High particulate results during storm events when plant drainage carries cement dust into on-site manholes.

Note: Control point 0100- sewage effluent, actually represents combined discharge of stp effluent and cooling water.

03/12/91

004186-00-0(8) ESSROC CANADA INC.- PICTON CEMENT PLANT PICTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - SEWAGE EFFLUENT

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		15107	19351	21590	21097	22846	23602	22872	23600	23610	21000	19650	21302	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL		6.75	8.25	7	5.4	6	10	7	11.8	7.5	6.5	8.7	7.7	
MG\L (BOD5)	REQUIREMENT		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	25	0
PHOSPHOR UNF. TOT.	ACTUAL		0.12	0.18	0.12	0.1	0.1	0.1	0.22	0.1	0.1	0.1	0.1	0.12	
MG\L (PPUT)	REQUIREMENT		1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL		13.2	95.6	108	30.5	22	31.8	75	13.3	26.8	92	16.2	48.8	
MG\L (RSP)	REQUIREMENT		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	25	S/C

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

004186-00-0(8) ESSROC CANADA INC.- PICTON CEMENT PLANT PICTON REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - COOLING WATER

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3107	3107	3107	3107	3107	3107	3107	3107	3107	3107	3107	3107	3107	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP RISE	ACTUAL	2.64	2.7	3.2	3	2.7	4	4.2	4.1	4.1	4.7	3.6	1.3	3.35	
DEG.C (FWTINC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

004186-00-0(8) ESSROC CANADA INC.- PICTON CEMENT PLANT PICTON REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - CEMENT PLANT EFFLUENT

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL		87.4	127.4	48.5	38.5	59	74.2	295		48.2	115	108.7	100	
KG /DAY (RSP)	REQUIREMENT		S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ethyl Canada Inc.
& PLANT LOCATION: Corunna

IMIS NO.: 0000120006

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals Manufacturing

SIC CODE: 3712

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Tetraethyl lead is made from a lead-sodium alloy and ethyl chloride. Various other fuel additives are blended.

EFFLUENT CHARACTERISTICS: Contains organic lead and miscellaneous trace hydrocarbons.

EFFLUENT TREATMENT: Physical-chemical.

DISCHARGE TYPE: continuous through an extended outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : C of A #4-021-86-006 for combined plant effluent for alkyl load.

EXCEEDANCES:

REMEDIAL ACTIONS: None required.

COMMENTS: Water intake is treated water from Shell's water treatment plant.

MISA Toxicity Results.

Three trout bioassays, indicated the combined effluent to have been non-acutely lethal to test fish.

03/21/91

000012-00-0(6) ETHYL CANADA INC. CORUNNA REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	24673	31823	31292	32781	35306	47094	37141	37141	41117				35374	
M3 /DAY (FTFLOW)	GUIDELINE														
LEAD UNF.TOT.	ACTUAL	8.7	7.8	6.1	9.3	7.6	7.8	10.4	12.9	7.8	+	+	+	8.7	
KG /DAY (PBUT)	GUIDELINE	24.7	31.8	31.3	32.8	35.3	47.1	37.1	37.1	41.1				35.4	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

+ MISA DATA IS UNDER GOING REVIEW AND WILL BE AVAILBLE IN MISA SECTOR REPORTS. SAMPLING PROBLEMS WERE EXPERIENCED IN OCT, NOV, DEC
NEW SAMPLE EQUIPMENT WAS INSTALLED IN JANUARY. THESE PROBLEMS HAVE BEEN OVERCOME

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Exolon-Esk Company of Canada Ltd. (previously reported as Exolon) Thorold	IMIS NO.: 0001640002
MOE REGION:	West Central	DISTRICT: Welland
INDUSTRIAL SECTOR:	Industrial Minerals	SIC CODE: 3571
RECEIVING WATERBODY:	DIRECT: 9.7 km from Beaverdams Pond to 12 Mile Creek INDIRECT: Lake Ontario	

DESCRIPTION OF ACTIVITY: Manufactures abrasive products

EFFLUENT CHARACTERISTICS: Furnace cooling water which contains Total Suspended Solids and Organics (measured by oil and grease test).

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the Outfall Beaver-Dam Rd. effluent to have been non-acutely lethal to test fish.

COMMENTS:

03/08/91

000164-00-0(2) EXOLON-ESK COMPANY OF CANADA LTD. THOROLD REPORT DATE: 19 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10900	10900	10900	10900	10900	10900	10400	10900	10900	10900	10900	10900	10858	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	32.7	32.7					38.15		0			109	42.5	
KG /DAY (RSP)	GUIDELINE	164	164					156		164			164	162	0
SOLVENT EXTRACT.	ACTUAL			2.1	2.1					0	1.09			1.32	
KG /DAY (SOLEXT)	GUIDELINE			164	164					164	164			164	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Explosives Technologies International Inc. (ETI)
& PLANT LOCATION: Nipissing Works
North Bay

IMIS NO.: 0000080200

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3799

RECEIVING WATERBODY: DIRECT: La Vase River - Lake Nipissing
INDIRECT: 121 km from French R. Main Channel

DESCRIPTION OF ACTIVITY: Production of explosives based on ammonium nitrate and methylamine nitrate.

EFFLUENT CHARACTERISTICS: Contains nitrates and ammonia.

EFFLUENT TREATMENT: Equalization pond for pH control.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: One exceedance of NH3-N guideline.

REMEDIAL ACTIONS: Excavation of spilled materials in treatment pond caused resuspention of sediment and associated nitrogen compounds resulting in exceedance. Discharger met requirements in 1990.

COMMENTS: One trout bioassay conducted in 1989, indicated the final effluent to be non acutely lethal to test fish.

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the Discharge at Weir effluent to have been non-acutely lethal to test fish.

03/18/91

000008-02-0(0) EXPLOSIVE TECHNOLOGIES INTERNATIONAL LTD. NORTH BAY
CONTROL POINT: 0100 DATA FOR 1989 REPORT DATE: 12 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2223	2410	4394	4666.6	3636.3	3253	1100	187	601.8	760.3	1345.5	193.2	2064	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	2.4	4.1	8.9	24.3	8	31.8	15.6	1.9	2.3	2.8	4.1	1.6	8.38	
KG /DAY (NNHTFR)	GUIDELINE	22.2	24.1	43.9	46.7	36.4	32.5	11	1.9	6.02	7.6	13.5	1.93	21.5	1
NO2+NO3N FIL.REAC	ACTUAL	4.3	3.8	8.3	22.2	8.4	30.2	18.9	3.4	2.5	2.8	5.3	1.4	9.29	
KG /DAY (NNOTFR)	GUIDELINE														
PH FIELD	ACTUAL	6.7	6.9	6.6	6.1	6.6	6.5	6.6	6.9	7.2	7	6.7	6.7	6.71	
(FWPH)	GUIDELINE														0
RESIDUE FILTERED	ACTUAL	164	192	562.4	398.4	299.7	669	218	36.2	62.6	98	112.9	21.3	236	
KG /DAY (RSF)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Falconbridge, NIR Road

IMIS NO.: 0001700004

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Coniston Creek to Wanapitei River
INDIRECT: 80 km. to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Converts ore into metallic matte.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with Calcium Oxide (quicklime)/ slag granulation water is also neutralized .

DISCHARGE TYPE: Continuous decant flow from main tailings area

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Requirements as of October, '87 are Mineral Mining Guidelines as specified in Certificate of Approval.

EXCEEDANCES: Yes. in 1989 iron limit exceeded in August, and nickel limit exceeded in December . In 1990 iron exceeded limit in July and August and nickel exceeded limit in January. No exceedednces in 1991.

REMEDIAL ACTIONS: A detailed study of the wastewater treatment system is being conducted. The final report will be evaluated by MOE upon completion in 1991. Remedial measureses for tailings area are planned for 1991.

COMMENTS: Bioassays conducted in 1989 showed this effluent was not acutely lethal to *Daphnia magna* or rainbow trout.

01/11/91

000170-00-0(4) FALCONBRIDGE LTD., FALCONBRIDGE FALCONBRIDGE REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	28132	35216	43627	148067	40730	30210	13699	16946	18921	16727	23164	19297	36228	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	7.15	7.18	7.05	6.9	6.74	6.53	6.8	7	6.8	7.15	7.13	6.94	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.56	0.7	0.87	5.92	2.44	0.6	1.78	0.17	0.19	0.33	0.46	0.58	1.22	
KG /DAY (CUUT)	GUIDELINE	28.1	35.2	43.6	148	40.7	30.2	13.7	16.9	18.9	16.7	23.2	19.2	36.2	0
IRON UNF.TOT.	ACTUAL	3.38	5.28	7.85	87.36	8.96	3.63	5.75	17.3	15.33	8.53	7.88	5.98	14.8	
KG /DAY (FEUT)	GUIDELINE	28.1	35.2	43.6	148	40.7	30.2	13.7	16.9	18.9	16.7	23.2	19.2	36.2	1
NICKEL UNF.TOT.	ACTUAL	22.22	28.17	39.26	87.36	20.77	9.06	4.38	3.05	3.03	4.35	8.11	25.5	21.3	
KG /DAY (NIUT)	GUIDELINE	28.1	35.2	43.6	148	40.7	30.2	13.7	16.9	18.9	16.7	23.2	19.2	36.2	1
LEAD UNF.TOT.	ACTUAL	1.41	1.41	1.53	4.44	2.44	1.21	0.41	0.68	0.38	0.67	1.16	0.96	1.39	
KG /DAY (PBUT)	GUIDELINE	28.1	35.2	43.6	148	40.7	30.2	13.7	16.9	18.9	16.7	23.2	19.2	36.2	0
PHENOLS UNF-REAC	ACTUAL	0	0											0	
KG /DAY (PHNOL)	GUIDELINE	0.563	0.704											0.634	0
PHOSPHOR UNF.TOT.	ACTUAL		0											0	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	150.51	49.3	490.8	162.87	142.56	99.69	90.41	57.62	88.93	76.94	46.33	55.96	126	
KG /DAY (RSP)	GUIDELINE	422	528	654	2221	611	453	205	254	284	251	347	289	543	0
SULPHATE UNF.REAC	ACTUAL	12856.3	16692.4	18410.6	42051	12830	9214.05	5219.32	5795.53	7454.87	6590.44	9752.04	8934.51	12983	
KG /DAY (SSO4UR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	1.13	2.47	0.87	2.96	0.81	1.21	0.41	0.68	0.57	0.33	0.46	0.39	1.02	
KG /DAY (ZNUT)	GUIDELINE	28.1	35.2	43.6	148	40.7	30.2	13.7	16.9	18.9	16.7	23.2	19.2	36.2	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 86, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd., Kidd Creek Mine Division
Metallurgical Site
Timmins

IMIS NO.: 0000990002

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0594, 0591, 295

RECEIVING WATERBODY: **DIRECT:** man-made ditch
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Crushed ore is concentrated, smelted and refined into zinc, copper and gold. Sulphuric acid is made from sulphur dioxide

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of nickel, copper, zinc etc.

EFFLUENT TREATMENT: Effluent is limed and overflow (decant) is discharged.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Zinc (2)

REMEDIAL ACTIONS: A computerized telemetry system was installed in 1990 to improve effluent quality control. An amendment to the discharge approval is pending and will address dilution ratios.

COMMENTS: Unreactive lime caused an exceedance of zinc in November. Company rectified matter with supplier. A ministry study was conducted in 1989 to determine the effluent's impact on the receiver. The study determined that impact on the Porcupine River was due to cumulative impacts and limited assimilative capacity.

One of two trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 55.0 %. The second sample was determined to have been non-acutely lethal.

03/12/91

000099-00-0(2) FALCONBRIDGE LTD. METALLURGICAL SITE TIMMINS REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (ASUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER FIL.TOT.	ACTUAL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (CUFT)	GUIDELINE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
IRON FIL.TOT.	ACTUAL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (FEFT)	GUIDELINE														
MERCURY UNF.TOT.	ACTUAL	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
MG/L (HGUT)	GUIDELINE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0
NH3-N FIL.REAC	ACTUAL	2.3	2.5	4.3	3.3	2	1.2		1	0.5	0.7	1.4	1.9	1.92	
MG/L (NNH3FR)	GUIDELINE														0
LEAD FIL.TOT.	ACTUAL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MG/L (PBFT)	GUIDELINE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
PH	ACTUAL	10.9	10	9.4	8.9	8.1	8.9	8.9	8.2	8.2	9.4	8.8	9.8	9.13	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	19	13	24	16	10	10	10	10	10	10	17	19	14	
MG/L (RSP)	GUIDELINE	25	25	25	25	25	25	25	25	25	25	25	25	25	0
RESIDUE TOTAL	ACTUAL	2347	2276	2139	1706	1795	2275	2338	2447	2627	2729	2743	2627	2337	
MG/L (RST)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	1514	1723	1265	994	1103	1386	1473	1490	1625	1590	1596	1663	1452	
MG/L (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.1	0.6	0.5	0.04	0.26	0.16	0.22	0.1	0.13	0.38	1.16	0.34	0.33	
MG/L (ZNUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - UNLIMITED (FEDERAL REG)

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Falconbridge Ltd., Kidd Creek Mine Division
& PLANT LOCATION: Mine Site
Timmins

IMIS NO.: 0000990101

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0594, 0591, 295

RECEIVING WATERBODY: DIRECT: Kidd Creek
INDIRECT: Moose R.

DESCRIPTION OF ACTIVITY: Mine site ore is crushed for further processing at the metallurgy site.

EFFLUENT CHARACTERISTICS: Tailings effluent contains dissolved metal salts of nickel, copper, zinc etc..

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa, 1977 (Federal)

EXCEEDANCES: Zinc (1) , NH3-N (1)

REMEDIAL ACTIONS: An increased in recirculation and a settling pond dredging program to increase retention was undertaken in 1990. Effluent in compliance in 1990.

COMMENTS: The trout bioassays in 1989 indicated the final effluent to be non-acutely lethal.

03/21/91

000099-01-0(1) FALCONBRIDGE LTD., KIDD CREEK MINE TIMMINS REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
IRON FIL.TOT.	ACTUAL	0.43	0.48	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.16	
MG/L (FEFT)	GUIDELINE														
NH3-N FIL.REAC	ACTUAL	3.48	8.7	22	5.9	1	1.3	0.85	1.7	1.2	1.6	2.2	3.9	4.49	
MG/L (NNH3FR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	1
PH	ACTUAL	9.1	9.6	10.1	9.3	10.1	10.75	10.67	10.7	9.6	9.2	9.8	10.2	9.93	
(PH)	GUIDELINE														0
RESIDUE TOTAL	ACTUAL	407	596	944	567	211	388	452	607	680	732	382	504	539	
MG/L (RST)	GUIDELINE														
SULPHATE FIL.REAC	ACTUAL	187	269	517	252	54	125	192		325	247		219	239	
MG/L (SSO4FR)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.32	0.13	0.1	0.3	0.69	0.47	0.34	0.1	0.26	0.39	0.44	0.5	0.34	
MG/L (ZNUT)	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - UNLIMITED (FEDERAL REG)

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd. - Lockerby Mine
Denison Twp.

IMIS NO.: 0001700202

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY:
DIRECT: Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Mine water treated by ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Company is in compliance in 1989, 1990, and 1991.

REMEDIAL ACTIONS:

COMMENTS: Bioassays conducted in 1989 showed that this effluent was not acutely lethal to *Daphnia magna* or rainbow trout.

03/08/91

000170-02-0(2) FALCONBRIDGE LTD., LOCKERBY ONAPING REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	107	107	107	107	107	107	107	107	107	107	107	107	107	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9	8.2	6.9	9.3	9.2	7	7.3	8.1	7.9	8.8	6.9	7.3	7.99	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.006	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	
KG /DAY (CUUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0
IRON UNF.TOT.	ACTUAL	0.03	0.01	0.01	0.01	0.01	0.001	0.001	0.01	0.01	0.01	0.01	0.01	0.01	
KG /DAY (FEUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0
NICKEL UNF.TOT.	ACTUAL	0.02	0.01	0.01	0.01	0.01	0.01	0.004	0.01	0.001	0.004	0.01	0.01	0.01	
KG /DAY (NIUT)	GUIDELINE	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0.107	0
RESIDUE PARTIC.	ACTUAL	0.21	0.11	0.3	0.11	0.06		0.05	0.04	0.41	0.25	0.11	0.004	0.14	
KG /DAY (RSP)	GUIDELINE	1.61	1.61	1.61	1.61	1.61		1.61	1.61	1.61	1.61	1.61	1.61	1.61	0
SULPHATE UNF.REAC	ACTUAL	28.03	29.75	38.41	23.97	27.61	34.45	31.78	42.91	40.77	40.45	30.39	35.2	33.6	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Onaping Falls, Moose Lake Wastewater Treatment System

IMIS NO.: 0001700301

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: **DIRECT:** Moose Lake to Onaping River, to Vermillion River, to Spanish River.
INDIRECT: 125 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Extraction from ore into Nickel and Copper concentrates which are shipped to the smelter.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with limestone slurry prior to discharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** The nickel limit is set by the Certificate of Approval at 10,724 kg/year, for 1989.

MOE OR FEDERAL GUIDELINES: Federal Guidelines will be imposed by new C. of A, which was issued in 1990.

EXCEEDANCES: Suspended Solids exceeded guideline in December. Total nickel discharge in 1989 was 21,667 kg, above the C of A annual limit of 10,724 kg..

REMEDIAL ACTIONS: Treatment facilities were upgraded in 1990, to meet requirements of new C. of A. Lime treatment (instead of limestone) is being performed as a result of the changes.

COMMENTS: Lime treatment system installed 1990 has greatly reduced nickel loadings to Moose Creek. New C.of A. sets a concentration limit for nickel of 0.5 ppm (1990). The company is currently meeting this requirement.

One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 70.8 %. A bioassay using *Daphnia magna* showed that 19.9% effluent killed 50% of the test animals within 2 days.

03/21/91

000170-03-0(1)   FALCONBRIDGE LTD. STRATHCONA (MOOSE LAKE)   ONAPING FALLS   REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	44575	24125	33622	61650	33100	45443	39257	38582	14627		196	185	30487	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.18	7.28	7.1	7.1	6.4	6.4	6.55	6.55	6.48		6.78	6.6	6.77	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	5.79	3.14	2.69		1.99	3.18			2.05		0.02		2.10	
KG /DAY (CUUT)	GUIDELINE	44.6	24.1	33.6		33.1	45.4			14.6		0.196		21.73	0
IRON UNF.TOT.	ACTUAL	15.2	12.3	10.09	35.76	3.97	3.64	3.53	7.72	2.63		0.03	0.15	8.64	
KG /DAY (FEUT)	GUIDELINE	44.6	24.1	33.6	61.7	33.1	45.4	39.3	38.6	14.6		0.196	0.185	30.49	0
NICKEL UNF.TOT.	ACTUAL	118	55.5	68.93	130.08	63.88	87.25	80.87	79.48	33.06		0.51	0.47	65.28	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C	S/C	S/C	
RESIDUE PARTIC.	ACTUAL	71.3	72.4	47.07	135.63	33.1	54.53	54.96	61.73	2.93		0.78	2.92	48.85	
KG /DAY (RSP)	GUIDELINE	669	362	504	925	497	682	589	579	219		2.94	2.78	457.43	1
SULPHATE UNF.REAC	ACTUAL	28661.7	15319.4	21249.1	28975.5	10724.4	15314.3	17547.9	18519.4	7503.6		59	56.24	14902.78	
KG /DAY (SSO4UR)	GUIDELINE	-	-	-	-	-	-	-				-	-		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 40, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Falconbridge Ltd. - Onaping Mine, Onaping Falls

IMIS NO.: 0001700103

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY:
DIRECT: Onaping River to Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with sodium hydroxide.

DISCHARGE TYPE: Continuous from treatment system .

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: In 1989 pH level exceeded MOE guidelines in March and April. Suspended solids exceeded guideline in March and December. in 1990 there were no exceedednces . Suspended solids exceeded guideline in February of 1991.

REMEDIAL ACTIONS: The cause of the toxicity of this effluent may be a combination of high pH/ammonia. A proposal to divert this waste stream to the Moose Lake Treatment System, where increased retention time and pH control equipment should mitigate the problem, was submitted in 1991 and is presently bein evaluated.

COMMENTS: One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 49.1 %. This effluent was also found to be acutely lethal to Daphnia magna.

01/11/91

000170-01-0(3) FALCONBRIDGE LTD., ONAPING MINE ONAPING FALLS REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1167	1094	1154	1473	1424	731	434	573	364	737	867	777	900	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.6	10.4	11	10.9	10.1	10.15	10.4	9.7	10	9.84	9.4	9.1	10.1	
(PH)	GUIDELINE														2
COPPER UNF.TOT.	ACTUAL	0.05	0.01	0.02	0.01	0.07	0.02	0.13	0.01	0.01	0.01	0.01	0.01	0.03	
KG /DAY (CUUT)	GUIDELINE	1.17	1.09	1.15	1.47	1.42	0.731	0.434	0.573	0.364	0.737	0.867	0.777	0.9	0
IRON UNF.TOT.	ACTUAL	0.16	0.09	0.1	0.03	0.09	0.04	0.03	0.09	0.05	0.05	0.09	0.03	0.071	
KG /DAY (FEUT)	GUIDELINE	1.17	1.09	1.15	1.47	1.42	0.731	0.434	0.573	0.364	0.737	0.867	0.777	0.9	0
NICKEL UNF.TOT.	ACTUAL	0.14	0.16	0.24	0.21	0.06	0.07	0.03	0.08	0.04	0.1	0.23	0.35	0.143	
KG /DAY (NIUT)	GUIDELINE	1.17	1.09	1.15	1.47	1.42	0.731	0.434	0.573	0.364	0.737	0.867	0.777	0.9	0
RESIDUE PARTIC.	ACTUAL	16.57		28.85	17.38	6.98	3.66	2.6	2.98	0.95	1.18	10.19	16.78	9.83	
KG /DAY (RSP)	GUIDELINE	17.5		17.3	22.1	21.4	11	6.51	8.6	5.46	11.1	13	11.7	13.2	2
SULPHATE UNF.REAC	ACTUAL	527.48	588.57	581.62	562.69	350.3	329.68	227.85	373.02	215.12	428.93	488.12	351.98	419	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, D* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Fiberglas Canada Inc. Sarnia

IMIS NO.: 0000270306

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3594

RECEIVING WATERBODY: DIRECT: Cole Drain
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: insulation is produced from silicate sands

EFFLUENT CHARACTERISTICS: Contains trace processing agents such as phenols

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliace.

REMEDIAL ACTIONS: None required.

COMMENTS:

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the Main effluent to have been non-acutely lethal to test fish.

11/16/90

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000027-03-0(6)    FIBERGLAS CANADA INC.                          SARNIA                                                                       REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS                                                                                                       ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS            JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV            DEC AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL             4600     1100     4700     3600     6400     4200     5800     5700     5500     5300     6200                  4690
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL              8.1        8      8.1      8.2      8.3      8.3      8.4      8.4      8.4      8.1      7.9                   8.2
(PH )               GUIDELINE                                                                                                                                       0

PHENOLS UNF-REAC      ACTUAL            0.013    0.003    0.016    0.011    0.006    0.025    0.048    0.003    0.003    0.008    0.025                 0.015
KG /DAY (PHNOL )    GUIDELINE           0.092    0.022    0.094    0.072    0.128    0.084    0.116    0.114     0.11    0.106    0.124                 0.085         0

NOTE: S/C -SEE COMMENT,  PH-LIMITS  5.50 -  9.50
***********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Fleet Industries Ltd.
& PLANT LOCATION: Gilmore
Fort Erie

IMIS NO.: 0001570001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metals, Plastic Fabricating and Finishing

SIC CODE: 321

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River. Cooling water only
INDIRECT: Process discharge to municipal sewer.

DESCRIPTION OF ACTIVITY: Fabricator of aircraft parts

EFFLUENT CHARACTERISTICS: Contains trace amount of heavy metals, phosphorus and Total Suspended Solids.

EFFLUENT TREATMENT: Wastewater is discharged to sanitary sewer and cooling water to creek.

DISCHARGE TYPE: Cooling water is discharged to Fenchman's Creek

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company exceeded suspended solids guideline for one month, Compliance assessed against total plant discharge.

REMEDIAL ACTIONS: Company connected process wastewater to municipal sewer system in October 1986. Exceedances attributed to storm runoff conditions, discharge met guidelines in 1990.

COMMENTS: Company discharges cooling water only.

03/08/91

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000157-00-0(1)    FLEET MFG COMPANY LTD                              FORT ERIE                                                      REPORT DATE: 25 FEB 91
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/004/      LAKE ONTARIO
                    INCLUDES CONTROL POINTS:  0100 0200
                    DATA FOR 1989                                                                                                       ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL           1031     1031     1031     1031     1031     1031     1031     1031     1031     1031     1031     1031     1031
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL           8.05     7.65     7.55     7.45      7.7     8.15     7.85     7.35      7.3     7.45      7.7      7.5     7.64
(PH )               GUIDELINE                                                                                                                               0

BOD 5 DAY             ACTUAL              0        0        0      3.6      2.6       12        3      2.6      2.6        3      0.7      0.6     2.56
KG /DAY (BOD5 )     GUIDELINE          15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5         0

CHROMIUM UNF.TOT.     ACTUAL              0     0.07        0        0        0     0.02     0.01     0.03     0.02        0     0.01     0.03    0.016
KG /DAY (CRUT )     GUIDELINE          1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03         0

LEAD UNF.TOT.         ACTUAL          0.005    0.003     0.05    0.008   0.0004    0.001    0.007    0.004    0.001    0.005   0.0017    0.001    0.007
KG /DAY (PBUT )     GUIDELINE

PHOSPHOR UNF.TOT.     ACTUAL              0    0.027     0.11        0        0     0.04     0.06    0.004     0.03     0.16    0.011     0.18    0.052
KG /DAY (PPUT )     GUIDELINE          1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03     1.03         0

RESIDUE PARTIC.       ACTUAL              0       11        0      0.7      0.7      0.7      0.7        1        0      0.7        0       36     4.29
KG /DAY (RSP )      GUIDELINE          15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5     15.5    15.46         1
NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.5 - 9.5
********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.
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000157-00-0(1) FLEET MFG COMPANY LTD FORT ERIE
CONTROL POINT: 0100 DATA FOR 1989 - FRENCHMANS CREEK - GROSS DATA REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	369	369	369	369	369	369	369	369	369	369	369	369	369	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	7.7	7.7	7.4	7.7	8	7.9	7.3	7.3	7.3	7.6	7.5	7.62	0
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KG /DAY (BOD5)	GUIDELINE	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	
CHROMIUM UNF.TOT.	ACTUAL	0	0.02	0	0	0	0.01	0.01	0	0	0	0.01	0.01	0.005	0
KG /DAY (CRUT)	GUIDELINE	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	
LEAD UNF.TOT.	ACTUAL	0.001	0.001	0.01	0.001	0.0004	0.001	0.006	0.002	0.001	0.002	0.001	0	0.002	
KG /DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0.02	0.04	0	0	0.04	0.03	0.004	0.02	0.05	0.004	0.01	0.018	0
KG /DAY (PPUT)	GUIDELINE	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	0.369	
RESIDUE PARTIC.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KG /DAY (RSP)	GUIDELINE	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000157-00-0(1) FLEET MFG COMPANY LTD FORT ERIE
CONTROL POINT: 0200 DATA FOR 1989 - WWTP - GROSS DATA REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	662	662	662	662	662	662	662	662	662	662	662	662	662	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	7.6	7.4	7.5	7.7	8.3	7.8	7.4	7.3	7.6	7.8	7.5	7.67	0
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	0	0	0	3.6	2.6	12	3	2.6	2.6	3	0.7	0.6	2.56	1
KG /DAY (BOD5)	GUIDELINE	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	
CHROMIUM UNF.TOT.	ACTUAL	0	0.05	0	0	0	0.01	0	0.03	0.02	0	0	0.02	0.011	0
KG /DAY (CRUT)	GUIDELINE	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	
LEAD UNF.TOT.	ACTUAL	0.004	0.002	0.04	0.007	0	0	0.001	0.002	0	0.003	0.0007	0.001	0.005	
KG /DAY (PBUT)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0.007	0.07	0	0	0	0.03	0	0.01	0.11	0.007	0.17	0.034	0
KG /DAY (PPUT)	GUIDELINE	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	0.662	
RESIDUE PARTIC.	ACTUAL	0	11	0	0.7	0.7	0.7	0.7	1	0	0.7	0	36	4.29	2
KG /DAY (RSP)	GUIDELINE	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Ford Motor Company Niagara Falls

IMIS NO.: 0000020503

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 325

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacturing automotive glass.

EFFLUENT CHARACTERISTICS: Contains Total Suspended Solids, Oil and grease and trace pollutants.

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant and oil water separation.

DISCHARGE TYPE: continuous two discharges, both to the Welland River (treated sanitary and contact cooling water) (control point 02-00 & 04-00)

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario (Provincal)

EXCEEDANCES: One exceedance occurred in December 1989 for total suspended solids.

REMEDIAL ACTIONS: No further exceedances, no action required.

COMMENTS: Cause of exceedance not determined.

03/08/91

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS REPORT DATE: 25 FEB 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5400 WELLAND R.
INCLUDES CONTROL POINTS: 0100 0400
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4000	3630	2727	2730	3550	3630	4500	4090	3636	3181	2954	3181	3484	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	33.6	7.98	7.97	3.28	9.9	0	7.2	3.26	0	7.6	0	19.7	8.37	
KG /DAY (BOD5)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.365	0
IRON UNF.TOT.	ACTUAL	0	1.4	0.098	0	0	0		0	0	0	0	0	0.136	
KG /DAY (FEUT)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	0.144	0	0.878	0.36	0.64	0.38	0	0	0	0	0	0.133	0.211	
KG /DAY (NNH4FR)	GUIDELINE	24	21.8	16.36	16.4	21.3	21.8	27	24.54	21.82	19.09	17.72	19.09	20.91	0
KJELDAHL ORGANIC	ACTUAL	0.16	0	0.764	0	3.91	0.06	0	0.187	0	0.38	0	4.48	0.828	
KG /DAY (NNKFR)	GUIDELINE														
PH	ACTUAL	7.65	6.05	6.6	7.45	7.6	7.65	7.6	7.6	7.9	7.7	5	7.9	7.23	
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0.164	0	0	0	0	0	0.019	0.017	0.19	0.033	
KG /DAY (PPUT)	GUIDELINE	2.4	2.18	1.636	1.64	2.13	2.18	2.7	2.454	2.182	1.909	1.772	1.909	2.091	0
RESIDUE PARTIC.	ACTUAL	24	2.9	6	13.12	6.39	0	0	0	0	0	0	153.9	17.2	
KG /DAY (RSP)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.365	1
SOLVENT EXTRACT.	ACTUAL	3.36	12.26	8.718	9.048	8.8	0.17	4.5	0	0	2.92	0.071	15.04	5.41	
KG /DAY (SOLEXT)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.365	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

000002-05-0(3) FORD MOTOR COMPANY
CONTROL POINT: 0100 DATA FOR 1989 - NET DATA - WELLAND RIVER STP - NET NIAGARA FALLS
REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2400	2180	1636	1640	2130	2150	2700	2454	2182	1909	1772	1909	2091	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	14.4	2.18	4.92	3.28	0	0	0	0	0		0	9.5	3.12	
KG /DAY (BOD5)	GUIDELINE	36.00	32.70	24.54	24.60	31.95	32.70	40.50	36.81	32.73		26.58	28.64	31.61	0
IRON UNF.TOT.	ACTUAL	0	1.4	0	0	0	0		0	0	0	0	0	0.127	
KG /DAY (FEUT)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	0.144	0	0.328	0.36	0.64	0.26	0	0	0	0	0	0.133	0.16	
KG /DAY (NNH4FR)	GUIDELINE	24	21.8	16.36	16.4	21.3	21.8	27	24.54	21.82	19.09	17.72	19.09	20.91	0
KJELDAHL ORGANIC	ACTUAL	0	0	0.328	0	3.2	0.02	0	0.026	0	0	0	1.52	0.426	
KG /DAY (NNKFR)	GUIDELINE														
PH	ACTUAL	7.8	6.5	6.9	8	7.9	8.1	7.6	7.8	7.9	7.9	5.3	8.4	7.51	
(PH)	GUIDELINE														1
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0.164	0	0	0	0	0	0.019	0.017	0.19	0.033	
KG /DAY (PPUT)	GUIDELINE	2.40	2.18	1.64	1.64	2.13	2.18	2.70	2.45	2.18	1.91	1.77	1.91	2.09	0
RESIDUE PARTIC.	ACTUAL	14.4	0	1.64	13.12	6.39	0	0	0	0	0	0	153.9	15.8	
KG /DAY (RSP)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.64	26.58	28.64	31.37	1
SOLVENT EXTRACT.	ACTUAL	0	2.4	0.328	0.328	0	0.02	0.54	0	0	0	0.071	2.09	0.481	
KG /DAY (SOLEXT)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.64	26.58	28.64	31.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 71, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS REPORT DATE: 25 FEB 91
CONTROL POINT: 0400 DATA FOR 1989 - NET DATA - WELLAND RIV' - NET

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1600	1450	1091	1090	1420	1450	1800	1536	1434	1272	1182	1272	1393	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	19.2	5.8	3.05	0	9.9	0	7.2	3.26	0	7.6	0	10.2	5.52	
KG /DAY (BOD5)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.37	0
IRON UNF.TOT.	ACTUAL	0	0	0.098	0	0	0		0	0	0	0	0	0.009	
KG /DAY (FEUT)	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	0	0	0.55	0	0	0.12	0	0	0	0	0	0	0.056	
KG /DAY (NNH4FR)	GUIDELINE	24	21.8	16.36	16.4	21.3	21.8	27	24.54	21.82	19.09	17.72	19.09	20.91	0
KJELDAHL ORGANIC	ACTUAL	0.16	0	0.436	0	0.71	0.04	0	0.163	0	0.38	0	2.96	0.404	
KG /DAY (NNKFR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (PPUT)	GUIDELINE	2.4	2.18	1.636	1.64	2.13	2.18	2.7	2.454	2.182	1.909	1.772	1.909	2.09	0
RESIDUE PARTIC.	ACTUAL	9.6	2.9	4.36	0	0	0	0	0	0	0	0	0	1.41	
KG /DAY (RSP)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.37	0
SOLVENT EXTRACT.	ACTUAL	3.36	9.86	8.39	8.72	8.8	0.15	3.96	0	0	2.92	0	12.95	4.93	
KG /DAY (SOLEXT)	GUIDELINE	36	32.7	24.54	24.6	31.95	32.7	40.5	36.81	32.73	28.635	26.58	28.635	31.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000002-05-0(3)   FORD MOTOR COMPANY   NIAGARA FALLS
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/5400 WELLAND R.   REPORT DATE: 17 MAR 91
INCLUDES CONTROL POINTS: 0300 0500
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY KG /DAY (BOD5)	ACTUAL	37.8	18.9	13.4	15.9	49.5	9.25	18	9	8	20.3	3	25.1	19.1	
	GUIDELINE														
FECAL COLIFORM CNT /100ML	ACTUAL	22	33	2				60			120	0	14	35.9	
	GUIDELINE														
PH (PH)	ACTUAL	7.8	6.5	6.9	8	7.9	8.1	7.6	7.8	7.9	7.9	5.3	8.4	7.5	
	GUIDELINE														
RESIDUE PARTIC. MG/L (RSP)	ACTUAL	36	44.3	19.6	51.3	38.4	23.3	28.8	6.5	25.2	19.1	11.8	33.7	28.2	
	GUIDELINE														
SOLVENT EXTRACT. MG/L (SOLEXT)	ACTUAL	10.34	21.7	8.9	1.5	10.4	4.7	5.9	4.1	3.7	8.1	1.5	15.7	8.0	
	GUIDELINE														
COLIFORM TOTAL CNT /100ML	ACTUAL	320	176	42				178			320	6	320	195	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

GROSS DATA PROVIDED FOR COMPARISON ONLY

000002-05-0(3)   FORD MOTOR COMPANY   NIAGARA FALLS   REPORT DATE: 17 MAR 91

CONTROL POINT: 0500 DATA FOR 1989 - GROSS DATA - WELLAND RIVER STP - GROSS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	16.8	8.7	8.2	11.5	19.2	4.9	5.4	2.5	2.2	7.6	1.8	13.4	8.5	
KG \DAY (BOD5)	GUIDELINE														
FECAL COLIFORM	ACTUAL	2	1	2				0			60	0	7	10.3	
CNT /100ML	GUIDELINE														
PH	ACTUAL	7.8	6.5	6.9	8	7.9	8.1	7.6	7.8	7.9	7.9	5.3	8.4		
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	21.6	26	9.8	42.6	25.6	13.1	16.2	4.9	10.9	11.5	7.1	18.4	17.1	
MG/L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	4.1	8.1	0.5	0.5	0.9	2.8	1.4	2.5	2.2	3.1	1.4	2.5	2.5	
MG/L (SOLEXT)	GUIDELINE														
COLIFORM TOTAL	ACTUAL	160	16	42				18			160	2	160	79.7	
CNT /100ML	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

GROSS DATA PROVIDED FOR COMPARISON PURPOSES ONLY

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS
CONTROL POINT: 0500 DATA FOR 1989 - GROSS DATA - WELLAND RIVER - GROSS
REPORT DATE: 25 FEB 91

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	13	7	4.8	4	17	3	7	4	4	10	1	10	7.07	
MG/L (BOD5)	GUIDELINE														
FECAL COLIFORM	ACTUAL	20	32	0				60			60	0	7	25.6	
CNT /100ML	GUIDELINE														
NH4-N FIL.REAC	ACTUAL	0.13	0.08	0.27	0.18	0.28	0.37	0.06	0.13	0.1	0.04	0.22	0.1	0.163	
MG/L (NNH4FR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	9	14	9	8	9	7	7	1	6	6	4	12	7.67	
MG/L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	3.9	9.4	7.7	0.9	6.7	1.3	2.5	1	1	3.9	0.1	10.4	4.07	
MG/L (SOLEXT)	GUIDELINE														
COLIFORM TOTAL	ACTUAL	160	160	0				160			160	4	160	115	
CNT /100ML	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

GROSS DATA PROVIDED FOR COMPARISON ONLY

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS
CONTROL POINT: 0500 DATA FOR 1989 - GROSS DATA - WELLAND RIVER - GROSS
REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	21	10.2	5.2	4.6	30.3	4.35	12.6	6.5	5.8	12.7	1.2	12.7	10.6	
MG/L (BOD5)	GUIDELINE														
FECAL COLIFORM	ACTUAL	20	32	0				60			60	0	7	25.6	
CNT /100ML	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	14.4	20.3	9.8	8.7	12.8	10.2	12.6	1.6	14.3	7.6	4.7	15.3	11.0	
MG/L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	6.24	13.6	8.4	1	9.5	1.9	4.5	1.6	1.5	5	0.1	13.2	5.5	
MG/L (SOLEXT)	GUIDELINE														
COLIFORM TOTAL	ACTUAL	160	160	0				160			160	4	160	114.9	
CNT /100ML	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

GROSS DATA PROVIDED FOR COMPARISON ONLY

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ford Motor Company Ltd
& PLANT LOCATION: Assembly Plant
St. Thomas

IMIS NO.: 0000020404

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 323

RECEIVING WATERBODY: DIRECT: Dodd Creek to Kettle Creek
INDIRECT: 38 Km to Lake Erie

DESCRIPTION OF ACTIVITY: Auto painting and assembly.

EFFLUENT CHARACTERISTICS: Contains suspended solids, zinc and biodegradable organics.

EFFLUENT TREATMENT: Domestic - Aerated activated sludge plant Industrial - Chemical batch followed by biological treatment and rapid sand filtration.

DISCHARGE TYPE: Intermittent through an on-shore outfall; weekend flow and pollutants drop off.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Discharge requirement for zinc has been changed to 0.2 mg/L. Phenol limit has been changed to 0.005 mg/l

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Suspended Solids exceeded once due to a process upset (15.4 mg/l vs. a requirement of 15 mg/l). Phenol exceeded on 3 occasions.

REMEDIAL ACTIONS: A consultant has been engaged to upgrade the wastewater treatment plant. Sludge lagoon decommissioning is underway as the first stage of plant upgrading. New plant design will address the phenol problem.

COMMENTS: Exceedance of suspended solids was due to a process upset.

03/05/91

000002-04-0(4)   FORD MOTOR COMPANY OF CANADA LIMITED   BOX 2005 ST THOMAS   REPORT DATE: 10 APR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2453	2386	2414	2305	8315	6782	4560	7787	6573	7221	8228	7417	5537	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.5	7.5	8.2	7.7	7.9	7.9	7.8	8	8.4	7.47	7.3	7.76	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	14.7	15	14.2	12.6	46.2	35.9	27.36	26.4	15.7	19.4	27	37	24.5	
KG /DAY (BOD5)	REQUIREMENT	24.5	23.9	24.1	23.1	83.2	67.8	45.6	77.9	65.7	72.2	82.3	74.2	55.4	0
CHEM. OX DEMAND	ACTUAL	90	136	113	95.1	357	328.9	178	311.4	105	152	240	222	194	
KG /DAY (COD)	REQUIREMENT	245	239	241	231	832	678	456	779	657	722	823	742	554	0
CHROMIUM UNF.TOT.	ACTUAL	0.26	0.42	0.21	0.09	0.7	0.13	0.22	0.23	0.13	0.28	0.7	1.33	0.392	
KG /DAY (CRUT)	REQUIREMENT	0.491	0.477	0.483	0.461	1.66	1.36	0.912	1.56	1.31	1.44	1.65	1.48	1.11	0
NH3-N TOTAL	ACTUAL	0.8	0.4	0.5	0.34	0.3	0.13	0.009	0.06	0.06	0.07	1.5	2.7	0.572	
KG /DAY (NNHTFR)	REQUIREMENT	12.3	11.9	12.1	11.5	41.6	33.9	22.8	38.9	32.9	36.1	41.1	37.1	27.7	0
PHENOLS UNF-REAC	ACTUAL	0.012	0.014	0.010	0.007	0.033	0.047	2.280	0.006	0.007	0.007	0.008	0.007	0.044	
KG/DAY (PHNOL)	REQUIREMENT	0.012	0.012	0.012	0.012	0.042	0.034	0.023	0.039	0.033	0.036	0.041	0.037	0.028	3
PO4 FIL.REAC	ACTUAL	1.3	0.69	0.06	1.1	0.72	2.44	1	2.25	1.77	2	3.2	2.9	1.62	
KG /DAY (PPO4FR)	REQUIREMENT	2.45	2.39	2.41	2.31	8.32	6.78	4.56	7.79	6.57	7.22	8.23	7.42	5.54	0
RESIDUE PARTIC.	ACTUAL	7.3	21.4	13	12.1	31.4	34.79	70.1	66.9	13.1	55	54.3	39.3	34.9	
KG /DAY (RSP)	REQUIREMENT	36.8	35.8	36.2	34.6	125	102	68.4	117	98.6	108	123	111	83.1	1
ZINC UNF.TOT.	ACTUAL	0.41	0.45	0.45	0.3	1	0.67	0.36	0.7	0.72	0.5	0.98	1	0.628	
KG /DAY (ZNUT)	REQUIREMENT	0.491	0.477	0.483	0.461	1.66	1.36	0.912	1.56	1.31	1.44	1.65	1.48	1.11	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 108, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ford Motor Co. of Canada Ltd.
& PLANT LOCATION: Windsor

IMIS NO.: 0000020107

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal casting

SIC CODE: 294, 325

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Engine block and parts are cast in the iron foundry; parts are machined and assembled into engines and transmissions.

EFFLUENT CHARACTERISTICS: Contains iron, phenol and suspended solids.

EFFLUENT TREATMENT: Chemical coagulation, oil removal and sedimentation.

DISCHARGE TYPE: Continuous six days a week through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (July 3,1987) Suspended solids requirement of 15mg/L.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Exceedances of suspended solids (RSP) and phenols (PHNOL).

REMEDIAL ACTIONS: Recycling of phenols to lower discharge loads and a new treatment system was brought on line in late 1988 to reduce suspended solids. Company is in process of optimizing both systems.

COMMENTS: The question of an appropriate phenol effluent requirement for this discharge has still not been resolved. The Ontario objective of 20 ug/l is not being met. However, this objective is not a legal requirement, but a guideline number. Some in-plant modifications, recirculation, resulted in the average monthly concentrations of phenols in the effluent being reduced from about 631 ug/l in January 1989 to less than 158 ug/l in Dec.

03/26/91

000002-01-0(7)   FORD MOTOR COMPANY OF CANADA, LIMITED   WINDSOR   REPORT DATE: 5 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	72935	73533	71998	73452	70522	72360	53806	73161	69757	65781	63872	52850	67836	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.7	7.8	8	8	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.85	
(PH)	REQUIREMENT														0
CHEM. OX DEMAND	ACTUAL	1327	1549	1362	1557	1353	983	878	1246	1154	1719	1730	1363	1352	
KG /DAY (COD)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	75	46	49	40	28	30	14	24	21	25	22	16	32.5	
KG /DAY (FEUT)	REQUIREMENT	1240	1250	1224	1249	1199	1230	915	1244	1186	1118	1086	898	1153	0
FLUORIDE UNF.TOT.	ACTUAL	379	236	285	276	279	284	127	256	329	269	263	154	261	
KG /DAY (FFIDUT)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	47	52	27	20.7	13.1	6.5	3.5	5.6	9.1	5.7	8.8	10.4	17.5	
KG /DAY (PH[illegible])	GUIDELINE	1.46	1.47	1.44	1.47	1.41	1.45	1.08	1.46	1.4	1.32	1.28	1.06	1.36	12
RESIDUE PARTIC.	ACTUAL	1228	1597	1342	1404	951	976	683	694	805	762	868	771	1007	
KG /DAY (RSP)	GUIDELINE	1094	1103	1080	1102	1058	1085	807	1097	1046	987	958	793	1018	4
RESIDUE TOTAL	ACTUAL	16716	17643	17080	17642	14561	14429	12195	14729	13966	13866	14093	11137	14838	
KG /DAY (RST)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	61	88	84	59	59	84	80	115	52	56	68	49	71.3	
KG /DAY (SOLEXT)	GUIDELINE	1094	1103	1080	1102	1058	1085	807	1097	1046	987	958	793	1018	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Gay Lee Foods Co-op Ltd. Teeswater

IMIS NO.: 0001000009

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 104

RECEIVING WATERBODY: DIRECT: Teeswater R.
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Milk is made into cheese, butter or dried.

EFFLUENT CHARACTERISTICS: Contains organic compounds such as proteins, sugars etc.

EFFLUENT TREATMENT: Secondary

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE established guidelines.

EXCEEDANCES: Yes. RSP (suspended solids) guideline exceeded on two occasions and slightly exceeded on two other occasions

REMEDIAL ACTIONS: Ministry District staff met with industry staff in 1989 to review in detail operating records for exceedance periods for RSP. The industry upgraded the operation by increasing monitoring, staffing on weekends and reducing spills loading upsets. Monitoring into 1990 will determine need for further improvements.

COMMENTS: BOD5 of 15 mg/L is the objective considered appropriate by District Office staff because this is the MOE guideline concentration consistent with the level of treatment provided. RSP of 15 mg/L is the objective considered appropriate by District Office staff because this is the MOE guideline concentration consistent with the level of treatment provided. District office staff do not consider it appropriate to establish an objective concentration for NNHTFR because there is insufficient basis to request one at this time. No objective for PPO4FR considered warranted at this time by District. Staff will be working with industry to establish an appropriate objective concentration for PPO4FR which balances level of treatment considered attainable with requirements for protection of the quality of the receiving stream.

11/16/90

000100-00-0(9)   GAY LEE FOODS COOPERATIVE LIMITED   TEESWATER   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	
M3 /DAY (FTFLOW)	REQUIREMENT	114	114	114	114	114	114	114	114	114	114	114	114	114	0
PH	ACTUAL	7.94	7.63	7.28	7.89	7.42	7.8	7.56	7.45	7.48	7.7	7.7	7.85	7.64	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	0.32	0.15	0.049	0.2	0.19	0.276	0.18	0.28	0.17	0.235	0.0274	0.269	0.196	
KG /DAY (BOD5)	GUIDELINE	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0
NH3-N TOTAL	ACTUAL	128	1.78	0.87	0.53	0.65	2.16	6.85	0.67	0.7	6.25	5	0.48	14.1	
MG/L (NNHTFR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0.76	0.53	0.0656	0.19	0.25	1.02	0.44	0.27	0.26	0.13	0.1078	0.147	0.348	
KG /DAY (RSP)	GUIDELINE	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	0.368	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: G. E. Plastics Canada Ltd.
& PLANT LOCATION: Cobourg

IMIS NO.: 0000600007

MOE REGION: Central

DISTRICT: Peterborough

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Formulation of ABS resins (plastics).

EFFLUENT CHARACTERISTICS: BOD, suspended solids, phosphorus.

EFFLUENT TREATMENT: Primary and secondary - extended aeration.

DISCHARGE TYPE: continuous through a submerged diffuser

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-003-85-006 July 23, 1985

BOD5	25 ppm;	54 kg/day
Suspended solids (RSP)	25 ppm;	54 kg/day
Phosphorus (PPUT)	1 ppm;	2.16 kg/day

Average of twelve monthly samples.

EXCEEDANCES: Yes - phosphorus, residue particulate (RSP), BOD5 and COD.

REMEDIAL ACTIONS: Changes to operation provided improved treatment in last three quarters of 1989. Polishing filters were installed in mid 1990.

COMMENTS: This plant is subject to MISA, organic chemical manufacturing sector. Residue particulate (RSP), phosphorus and BOD have been in compliance since the installation of the new treatment process.

03/12/91

000060-00-0(7) G.E. PLASTICS CANADA INC., COBOURG REPORT DATE: 16 MAR 90
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1176	1224	1270	1368	1478	1521	1407	1473	1371	1719	1995	1869	1489	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7	7.5	7.6							7.3	7.5	8	7.6	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	40.6	77.1	58.2	6.5	8.9	13.1	2.6	7.7	13.33	10.8	36	14	26.1	
KG /DAY (BOD5)	REQUIREMENT	29.4	30.6	31.8	34.2	37	38	35.2	36.8	34.3	43.0	49.9	46.7	37.2	3
CHEM. OX DEMAND	ACTUAL	109.4	191	191	79	58.1	101.7							122	
KG /DAY (COD)	GUIDELINE	165	171	178	192	207	213							188	2
K'DAHL N TOTAL	ACTUAL	14.2	30.16	18.71	5.21	4.1	6.15				1.64	50.58	65.04	21.75	
KG /DAY (NNTKUR)	GUIDELINE	58.8	61.2	63.5	68.4	73.9	76.1				86.0	99.8	93.5	75.67	0
PHOSPHOR UNF.TOT.	ACTUAL	1.02	2.03	1.46	0.38	0.25	0.71	2.41	2.62	0.36	0.2	2.45	1.76	1.30	
KG /DAY (PPUT)	REQUIREMENT	1.18	1.22	1.27	1.37	1.48	1.52	1.41	1.47	1.37	1.72	2.00	1.87	1.49	5
RESIDUE PARTIC.	ACTUAL	141	197	133.1	14.4	13.5	60.3	16.1	25.1	13.97	24.7	59.2	59.3	63.1	
KG /DAY (RSP)	REQUIREMENT	35.3	36.7	38.1	41	44.3	45.6	42.2	44.2	41.1	51.6	59.9	56.1	44.7	5

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 OUT OF 51, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1989.

REPORTED VALUES FOR BOD5, COD NOT MONITORED BY MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: General Chemical Canada Ltd
& PLANT LOCATION: Amherstburg

IMIS NO.: 0000010009

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Soda ash (sodium carbonate) is made from common salt (sodium chloride).

EFFLUENT CHARACTERISTICS: Contains inorganic salts (chlorides, carbonates).

EFFLUENT TREATMENT: By-product recovery and sedimentation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Total allowable chloride discharges = 2.36×10^8 kilograms per year, with a daily maximum of 1.361×10^6 kilograms per day, fluorides 200 kg/day.

MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Company is in compliance with Certificate of Approval requirements. There were eight exceedances of the RSP guideline.

REMEDIAL ACTIONS:

COMMENTS:

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the North Drain effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 24.2 %. The data for two more bioassays submitted to MOE indicated that both Main Drain Effluent and Intake Water supply were non-acutely lethal to test fish.

02/11/91

000001-00-0(9) GENERAL CHEMICAL CANADA LTD. AMHERSTBURG REPORT DATE: 5 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10890	10942	13556	9781	8849	16259	15977	15261	14928	14291	19148	14315	13683	
M3 /DAY (FTFLOW)	GUIDELINE														
ALK HYD-OXDE	ACTUAL	315	322	290	373	390	371	439	505	638	711	897	861	509	
MG/L AS CACO3	GUIDELINE														
ALK TOTAL	ACTUAL	483	482	482	502	538	463	542	616	774	851	1043	989	647	
MG/L AS CACO3	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	512000	512000	622000	438000	407000	718000	670000	642000	682000	715000	963000	719000	633333	
KG /DAY (CLIDUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
FLUORIDE UNF.TOT.	ACTUAL	24.5	25.6	34.6	26.6	21.5	38.8	40.7	41.8	46.7	45.5	59.5	42	37.3	
KG /DAY (FFIDUT)	REQUIREMENT	200	200	200	200	200	200	200	200	200	200	200	200	200	0
NH3-N TOTAL	ACTUAL	60	81	99	57	34	81	50	65	96	83	165	110	82	
KG /DAY (NNHTUR)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	109	98	137	152	203	294	286	220	326	190	445	586	254	
KG /DAY (RSP)	GUIDELINE	163	164	203	147	133	244	248	229	226	214	287	215	211	7
RESIDUE TOTAL	ACTUAL	875000	886000	1041000	722000	685000	1300000	1366000	1128000	1313000	1303000	1679000	1294000	1132667	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1989.

000001-00-0(9) GENERAL CHEMICAL CANADA LTD. AMHERSTBURG REPORT DATE: 5 MAR 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	87705	83085	91759	105292	113749	117641	107326	228687	222035	198429	192434	205845	145998	
M3 /DAY (FTFLOW)	GUIDELINE														
ALK TOTAL	ACTUAL	7	10	11	14	19	14	10	15	15	21	63	18	18	
MG/L (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	8728	8113	6394	13738	8665	5489	5216	11219	12151	16876	41256	20715	13213	
KG /DAY (CLIDUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	0
RESIDUE PARTIC.	ACTUAL	245	209	430	964	608	404	411	2579	1040	1458	11220	762	1694	
KG /DAY (RSP)	GUIDELINE	1316	1246	1376	1579	1706	1765	1610	3430	3330	2976	2887	3058	2190	1
RESIDUE TOTAL	ACTUAL	16796	17135	11875	20862	13136	10432	7979	21193	25722	39292	95305	38597	26527	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: General Motors of Canada Ltd.
& PLANT LOCATION: St. Catharines

IMIS NO.: 0001630003

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal Casting

SIC CODE: 323

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT: 9.2 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Coke and iron (pigs and scrap) are charged to a cupola to be processed into iron and cast as engine parts.

EFFLUENT CHARACTERISTICS: Contains metals, phenol and suspended solids

EFFLUENT TREATMENT: Secondary treatment, Rotating Biological Contactors.

DISCHARGE TYPE: continuous for five days a week through an outfall

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company has exceeded Phenol, total suspended solids .

REMEDIAL ACTIONS: Secondary treatment consisting of Rotating Biological Contactors were installed in 1988. Start-up problems were encountered and corrected by making equipment modifications in 1989 and early 1990. In 1990 a trial substitution of raw material reduced phenols in the untreated wastewaters. In 1991 the switch was made to this raw material.

COMMENTS: Compliance acheived in August 1990.

03/08/91

000163-00-0(3)   GENERAL MOTORS OF CANADA LTD.   ST CATHARINES   REPORT DATE: 6 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	129871	132807	132927	136201	141157	143715	149626	148186	141793	139721	134357	133535	138858	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	0	99.605	0	0	0	0	0	0	0	27.944	0	44.4668	14.3	0
KG /DAY (BOD5)	GUIDELINE	1948	1992	1994	2043	2117	2156	2244	2223	2127	2096	2015	2003	2080	
NH3-N TOTAL	ACTUAL	95.896	147.381	169.614	659.208	149.287	101.462	96.403	64.252	102.629	131.421	119.409	141.279	165	
KG /DAY (NNHTFR)	GUIDELINE														
K'DAHL N TOTAL	ACTUAL	91.688	177.628	222.651	721.86	164.588	91.618	101.745	68.757	108	138.323	134.692	206.043	186	
KG /DAY (NNTKFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	57.377	94.027	116.886	29.147	7.728	0.3952	0.2244	0.5631	1.631	6.7345	15.3367	50.6094	31.7	8
KG /DAY (PHNOL)	GUIDELINE	2.6	2.66	2.66	2.72	2.82	2.87	2.99	2.96	2.84	2.79	2.69	2.67	2.77	
PHOSPHOR UNF.TOT.	ACTUAL	0.597	1.76	1.595	67.691	1.553	0.467	0.4488	0.3853	0.1772	0.1677	0.2015	0.6276	6.31	0
KG /DAY (PPUT)	GUIDELINE	130	133	133	136	141	144	150	148	142	140	134	134	139	
RESIDUE FILTERED	ACTUAL	1454.54	1560.47	10301.8	3575.25	1835.03	5137.78	3478.78	1630.01	5317.2	3772.44	5710.13	4896.29	4256	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	3480.52	1460.87	3589	0	621.086	1006	299.25	948.371	496.272	5309.36	3963.5	178	1779	4
KG /DAY (RSP)	GUIDELINE	1948	1992	1994	2043	2117	2156	2244	2223	2127	2096	2015	2003	2080	
SOLVENT EXTRACT.	ACTUAL	25.974	33.202	398.778	136.2	116.454	431.142	1246.83	29.637	70.896	55.888	571.013	89.0672	267	0
KG /DAY (SOLEXT)	GUIDELINE	1948	1992	1994	2043	2117	2156	2244	2223	2127	2096	2015	2003	2080	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1989.

000163-00-0(3)   GENERAL MOTORS OF CANADA LTD.   ST CATHARINES   REPORT DATE: 20 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	519.5	666	685	681	706	719	743	741	709	727	672	668	685	
KG /DAY (BOD5)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	57.5	504.1	117	30	9	1.4	1.27	2.02	1.90	7.15	15.6	50.7	66.48	
KG /DAY (PHNOL)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	6.29	3.19	3.06	71.2	3.5	1.58	2.39	1.1	2.27	1.37	1.71	2.1	8.15	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	4364	3719	4652	-	3105	2802	1721	1600	2198	6427	5844	1514	3162	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	468	332	798	726	658	686	1878	474	248	279	705	223	606	
KG /DAY (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Giant Yellowknife Mines Ltd. - Pamour Mine

& PLANT LOCATION: Timmins

IMIS NO.: 0001090109

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: nameless creek
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered by the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel.

EFFLUENT TREATMENT: none

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): A Certificate of Approval was issued for the operation in September of 1987 and became effective on May 5, 1988 after an appeal by the company was resolved.. This certificate ensures that effluent discharge must meet required criteria rather than guidelines.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: In 1987 a heap leaching facility was constructed at the site in additic to the exisiting operation. Barren Bleed is segregated from active tailings area.

Two trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

11/15/90

000109-01-0(9) GIANT YELLOWKNIFE MINES., PANDUR #1 TIMING REPORT DATE: 28 FEB 91
CONTROL POINT: 0400 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0	0	0	0	0	0	0	0	0.012	0.012	0.006	0.006	0.003	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE AVAIL	ACTUAL	0.26	0.119	0.048	0.212	0.147	0.323	0.046	0.065	0.087	0.332	1.36	0.17	0.264	
MG/L AS HCN	GUIDELINE	2	2	2	2	2	2	2	2	2	2	2	2	2	0
COPPER UNF.TOT.	ACTUAL	0.119	0.088	0.063	0.1	0.11	0.181	0.113	0.094	0.119	0.181	0.23	0.1	0.125	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.438	0.65	0.89	0.71	0.556	0.363	0.681	0.606	0.538	0.425	0.194	0.5	0.544	
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0.15	0.163	0.13	0.18	0.244	0.313	0.181	0.125	0.144	0.238	0.474	0.45	0.233	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N UNF.REAC	ACTUAL	3.62	0.433	4.2	5.08	3.15	3.22	1.345	1.28	1.05	1.433	0.895	4.9	2.550	
MG/L AS N (NNNSUR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
LEAD UNF.TOT.	ACTUAL	0	0.038	0.025	0.025	0.013	0.013	0.031	0.044	0.038	0.031	0.033	0.026	0.026	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.325	7.2	7.3	7.3	7.3	7.97	7.8	7.6	7.7	7.7	7.488	7.5	7.5	
(PH)	GUIDELINE														0
PHOSPHOR UNF.TOT.	ACTUAL	0.095	0.16	0.58	0.1	0.075	0.25	0.045	0.175	0.05	0	0.075	0.42	0.185	
MG/L AS P (PPUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	[illegible]	1	0
RESIDUE PARTIC.	ACTUAL	7.75	3.7	2.75	3	3.5	8	4.25	1.25	4.2	4.75	9.25	10	5.200	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.019	0.025	0.025	0.031	0.019	0.025	0.05	0.05	0.038	0.031	0.013	0	0.027	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6
****
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 122, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Giant Yellowknife Mines Ltd. - Schumacher Mine, Timmins

IMIS NO.: 0001090000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: North Porcupine River

DESCRIPTION OF ACTIVITY: Gold Mining using the Merryl-Crowe process.

EFFLUENT CHARACTERISTICS: Cyanide, copper, zinc and nickel in effluent.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (August 9/88) At the time of issuance, the C. of A. incorporated the mining guideline effluent criteria as a requirement.

EXCEEDANCES: Copper (1), discharge was required to maintain safe dam levels.

REMEDIAL ACTIONS:

COMMENTS: Mill has shutdown and tailings area was partially reclaimed by ERG Resouces project. Accumulated run off is now collected and discharged when C of A discharge criteria is met.

One of two trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 53.4 %. The other sample was determined to have been non-acutely lethal to test fish.

11/15/90

000109-00-0(0) GIANT YELLOWKNIFE MINES LTD.-SCHUMACHER TIMMINS REPORT DATE: 28 FEB 91
CONTROL POINT: 0400 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL								0	0				0	
MG/L AS AS	GUIDELINE								0.5	0.5				0.5	0
CYANIDE AVAIL	ACTUAL					1.91			0.112	0.044				0.689	
MG/L AS HCN	GUIDELINE					2			2	2				2	0
COPPER UNF.TOT.	ACTUAL					6.8			0.388	0.406				2.53	
MG/L AS CU	GUIDELINE					1			1	1				1	1
IRON UNF.TOT.	ACTUAL					0.125			0.406	0.1888				0.24	
MG/L AS FE	GUIDELINE														
NICKEL UNF.TOT.	ACTUAL					0.4			0.113	0.156				0.223	
MG/L AS NI	GUIDELINE					1			1	1				1	0
NH3-N UNF.REAC	ACTUAL								2.98	2.5				2.74	
MG/L AS N (NNH3UR)	GUIDELINE								10	10				10	0
LEAD UNF.TOT.	ACTUAL					0.2			0.056	0.044				0.100	
MG/L AS PB	GUIDELINE					1			1	1				1	0
PH	ACTUAL					8.35			8	7.97				8.11	
(PH)	GUIDELINE														0
PHOSPHOR UNF.TOT.	ACTUAL								0.125	0.125				0.125	
MG/L AS P (PPUT)	GUIDELINE								1	1				1	0
RESIDUE PARTIC.	ACTUAL								2.75	0				1.38	
MG/L (RSP)	GUIDELINE								15	15				15	0
ZINC UNF.TOT.	ACTUAL					0.06			0.088	0.088				0.079	
MG/L AS ZN	GUIDELINE					1			1	1				1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.60 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Glen Ayr Kitten Mills.
& PLANT LOCATION: Village of Lanark

IMIS NO.: 0104210000

MOE REGION: Southeast

DISTRICT: Ottawa

INDUSTRIAL SECTOR: Textile

SIC CODE: 1821

RECEIVING WATERBODY: **DIRECT:** Clyde River
INDIRECT:

DESCRIPTION OF ACTIVITY: Washing of knitted materials.

EFFLUENT CHARACTERISTICS: Washwater containing detergents with elevated BOD, COD and suspended solids.

EFFLUENT TREATMENT: Dual cartridge filters on effluent discharge.

DISCHARGE TYPE: Batch.

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Monthly for BOD, some for suspended solids.

REMEDIAL ACTIONS: Company has completed several processes changes in 1990 that are expected to reduce discharge to within limits in 1991.

COMMENTS:

03/12/91

010421-00-0(0)   GLEN AYR KITTEN MILLS LTD.   LANARK   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		5.1646	3.1573	4.2259	4.3425	4.599	3.735	4.7025	4.62	3.5985	2.894	5.04	4.19	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7.4	7.3	6.9	7.95	6.83	7.01	7.36	7.42	7.41	7.2	6.78	7.23	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL		1.55	0.378	0.499	0.2	0.312	0.261	0.517	1.108	0.223	0.457	0.468	0.543	
KG /DAY (BOD5)	GUIDELINE		0.077	0.047	0.063	0.065	0.069	0.056	0.071	0.069	0.054	0.043	0.076	0.063	11
CHEM. OX DEMAND	ACTUAL		6.61	2.27	2.52	0.519	0.128	1.15	1.072	2.12	1.212	0.555	1.194	1.76	
KG /DAY (COD)	GUIDELINE		-	-	-	-	-	-	-	-	-	-	-		
NH3-N UNF.REAC	ACTUAL		0.00005	0.00035	0.0008	0.00004	0.0008	0.0006	0.0004	0.0004	0.0003	0.0002	0.0005	0	
KG /DAY (NNH3UR)	GUIDELINE		0.052	0.032	0.042	0.043	0.046	0.037	0.047	0.046	0.036	0.029	0.05	0.042	0
KJELDAHL ORGANIC	ACTUAL		0.022	0.01	0.009	0.0004	0.09	0.0096	0.0004	0.01	0.007	0.008	0.007	0.016	
KG /DAY (NNKUR)	GUIDELINE														
NO2-N UNF.REAC	ACTUAL		0.00002	0.007	0.002	0.004	0.0004	0.00003	0.0004	0.0004	0.00003	0.0002	0.0005	0.001	
KG /DAY (NNO2UR)	GUIDELINE														
NO3-N UNF.REAC	ACTUAL		0.0002	0.007	0.008	0.000043	0.0007	0.0003	0.0004	0.0015	0.0003	0.0002	0.0015	0.002	
KG /DAY (NNO3UR)	GUIDELINE														
PO4 FIL.REAC	ACTUAL		0.0046	0.039	0.089	0.00047	0.002	0.0004	0.0013	0.0004	0.0007	0.0002	0.0005	0.013	
KG /DAY (PPO4FR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		0.0046	0.0039	0.00089	0.001	0.09	0.0016	0.0028	0.0013	0.0014	0.0028	0.0006	0.01	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		0.00002	0.082	0.08	0.017	0.073	0.033	0.155	0.134	0.079	0.043	0.065	0.069	
KG /DAY (RSP)	GUIDELINE		0.077	0.047	0.063	0.065	0.069	0.056	0.071	0.069	0.054	0.043	0.076	0.063	6

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 61% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Golden Shield Resources - Kerr Division Virginiatown

IMIS NO.: 0001350008

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Larder Lake to Larder R.
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Gold mining and recovery using a cyanide circuit.

EFFLUENT CHARACTERISTICS: Contains arsenic, cyanide, copper, iron, nickel, dissolved solids and zinc.

EFFLUENT TREATMENT: Tailings, two Barren Ponds.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): (October 31, 1988) A conditional Certificate of Approval issued in 1984 (Condition 4) allowed the company until October 31, 1988 to meet the Ministry effluent requirements.

EXCEEDANCES: Arsenic (3) ,cyanide(6) iron (2), nickel (6), zinc (1), total metals (6), copper (6)

REMEDIAL ACTIONS: Company has applied for Certificate of Approval to upgrade facilities in 1991.

COMMENTS: The company went into receivership and the mine and mill were placed in a care and maintenance mode in 1989. In 1990, new owners restarted mine and mill operations. Discharge was in compliance until December 1990.

One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 3.2 %.

03/12/91

000135-00-0(8)   GOLDEN SHIELD RESOURCES LTD. KERR DIVISION   VIRGINIATOWN   REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	1	0.56	0.53	0.42	0.44	0.32							0.545	
MG/L (ASUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5							0.5	3
CYANIDE AVAIL	ACTUAL	7.7	7.7	10.5	8.61	7.24	3.25							7.5	
MG/L (CCNAUR)	REQUIREMENT	2	2	2	2	2	2							2	6
COPPER UNF.TOT.	ACTUAL	1.01	1.04	1.31	1.67	1.93	1.17							1.36	
MG/L AS CU	REQUIREMENT	1	1	1	1	1	1							1	6
IRON UNF.TOT.	ACTUAL	1.37	0.91	0.76	0.67	0.69	1.7							1.02	
MG/L AS FE	REQUIREMENT	1	1	1	1	1	1							1	2
NICKEL UNF.TOT.	ACTUAL	2.13	1.48	1.61	1.58	1.35	2.01							1.69	
MG/L AS NI	REQUIREMENT	1	1	1	1	1	1							1	6
PH	ACTUAL	9.52	10	9.95	9.9	9.5	8.55							9.57	
(PH)	REQUIREMENT														0
RESIDUE PARTIC.	ACTUAL	11	19	5.7	4.6	5.2	18.6							10.7	
MG/L (RSP)	REQUIREMENT	15	15	15	15	15	15							15	2
ZINC UNF.TOT.	ACTUAL	0.32	0.38	0.47	0.81	0.81	1.23							0.67	
MG/L AS ZN	REQUIREMENT	1	1	1	1	1	1							1	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 26 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 26% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Haley Industries
& PLANT LOCATION: Haley

IMIS NO.: 0058840000

MOE REGION: Southeast

DISTRICT: Pembroke

INDUSTRIAL SECTOR: Metal Casting

SIC CODE: 296, 298

RECEIVING WATERBODY: DIRECT: McLarens Creek
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Produce aluminum and magnesium castings for aircraft industry.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Neutralization, and settling.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): #4-062-86-006 (October 21, 1986) establishes criteria for parameters monitored.

EXCEEDANCES: Yes. Company exceeded criteria for several parameters.

REMEDIAL ACTIONS: Consultants hired to design new wastewater treatment plant to meet Certificate of Approval requirements. New treatment plant will be operational in 1992. An Order finalizing these compliance requirements will be finalized in 1991

COMMENTS:

03/12/91

005884-00-0(0) HALEY INDUSTRIES LTD. HALEY
CONTROL POINT: 0100 DATA FOR 1989 REPORT DATE: 10 APR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	265.385	265.385	265.385	265.384	265.385	265.385	265.384	265.38	265.38	265.3	265.3	265.3	265	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.01	10.01	10.01	13.38	10.48	10.04	9.9	10.57	9.96	9.56	9.815	11.04	10.4	
(PH)	REQUIREMENT														
SILVER UNF.TOT.	ACTUAL	0.241	0.02	0.109	0.012	0.006	0	0.255	0.036	0.102	0.031	0.0019	0.111	0.077	
KG /DAY (AGUT)	REQUIREMENT														
ALUMINUM UNF.TOT.	ACTUAL	0.25	0.38	0.006	0.003	0.01	0	0.055	0.061	0.135	0.1	0.052	0.186	0.103	
KG /DAY (ALUT)	REQUIREMENT	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	5
BOD 5 DAY	ACTUAL	39.4	45.16	43.25	60.5	50.9	6.369	13.67	172.5	28.93	13.26	25.74	101.76	50.1	
KG /DAY (BOD5)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	12
CHROMIUM UNF.TOT.	ACTUAL	0.106	0.123	0.081	0.06	0.048	0.085	0.023	0.03	0.033	0.07	0.004	0.049	0.059	
KG /DAY (CRUT)	REQUIREMENT	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	8
COPPER UNF.TOT.	ACTUAL	0.0175	0.008	0.015	0.02	0.016	0.021	0.006	0.017	0.016	0.011	0.008	0.025	0.015	
KG /DAY (CUUT)	REQUIREMENT	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	12
IRON UNF.TOT.	ACTUAL	0.119	0.333	0.308	0.685	0.3	0.119	0.215	0.121	0.092	0.25	0.189	1.16	0.324	
KG /DAY (FEUT)	REQUIREMENT	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	12
FLUORIDE UNF.TOT.	ACTUAL	3.596	9.94	9.282	5.069	6.502	3.896	4.883	7.2	3.875	2.75	4.54	10.57	6.01	
KG /DAY (FFIDUT)	REQUIREMENT	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12
NICKEL UNF.TOT.	ACTUAL	0.004	0.012	0.0095	0.003	0.003	0.005	0.068	0.009	0.004	0.015	0.003	0.012	0.012	
KG /DAY (NIUT)	REQUIREMENT														
NH3-N UNF.REAC	ACTUAL	4.17	3.14	5.698	3.429	3	1.592	3.224	3.92	2.49	1.32	1.29	11.2	3.71	
KG /DAY (NNH3UR)	REQUIREMENT	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	12
LEAD UNF.TOT.	ACTUAL	0.026	0.009	0.007	0.014	0.013	0.013	0.011	0.012	0.004	0.072	0.005	0.028	0.018	
KG /DAY (PBUT)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL	0.021	0.005	0.0384	0.033	0.037	0.001	0.038	0.001	0.001	0.0005	0.0005	0.0005	0.015	
KG /DAY (PHNOL)	REQUIREMENT														
RESIDUE FILTERED	ACTUAL	721.8	1000.3	921.95	698.069	911.8	289.269	646.742	964.88	477.16	360.4	452.7	1998.1	787	
KG /DAY (RSF)	REQUIREMENT	645	645	645	645	645	645	645	645	645	645	645	645	645	8
RESIDUE PARTIC.	ACTUAL	35.43	62.36	40.869	4.909	17.33	43.258	26.672	28.26	18.58	52.05	22.42	60.155	34	
KG /DAY (RSP)	REQUIREMENT	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	12
SOLVENT EXTRACT.	ACTUAL	1.59	1.22	1.484	1.692	2.21	2.919	2.76	0.318	0.716	0.35	0.232	1.01	1.38	
KG /DAY (SOLEXT)	REQUIREMENT	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	8

005884-00-0(0) HALEY INDUSTRIES LTD.
CONTROL POINT: 0100 DATA FOR 1989

HALEY

REPORT DATE: 10 APR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
SULPHITE UNF.REAC	ACTUAL	127.1	240.67	127.38	151.269	191	18.205	74.626	241.5	63.16	23.96	76.29	308.06	137	
KG /DAY (SSITUR)	REQUIREMENT	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	12
SULPHATE UNF.REAC	ACTUAL	190.4	233.2	245.48	199.3	138.8	164.273	344.87	171.17	147.55	110.5	235.26	713.8	241	
KG /DAY (SSO4UR)	REQUIREMENT	152	152	152	152	152	152	152	152	152	152	152	152	152	9
ZINC UNF.TOT.	ACTUAL	0.098	0.86	0.092	0.069	0.095	0.085	0.038	0.036	0.037	0.041	0.028	0.065	0.129	
KG /DAY (ZNUT)	REQUIREMENT	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 134 OUT OF 156, FOR A TOTAL COMPLIANCE RECORD OF 14% IN 1989.

005884-00-0(0) HALEY INDUSTRIES LTD. HALEY REPORT DATE: 10 APR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
SILVER UNF.TOT.	ACTUAL	0.908	0.077	0.41	0.046	0.02	0	0.963	0.133	0.383	0.118	0.0075	0.42	0.291	
MG/L AS AG	REQUIREMENT														
ALUMINUM UNF.TOT.	ACTUAL	0.945	1.43	0.02	0.01	0.04	0	0.205	0.46	0.51	0.38	0.195	0.705	0.408	
MG/L AS AL	REQUIREMENT	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	8
BOD 5 DAY	ACTUAL	148.5	170	163	228	191.7	24	51.5	325	109	50	97	384	162	
MG/L AS O (BOD5)	REQUIREMENT	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	12
CHROMIUM UNF.TOT.	ACTUAL	0.4	0.46	0.305	0.225	0.18	0.32	0.085	0.115	0.125	0.27	0.015	0.185	0.224	
MG/L AS CR	REQUIREMENT	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	11
COPPER UNF.TOT.	ACTUAL	0.066	0.06	0.055	0.075	0.06	0.08	0.02	0.065	0.06	0.04	0.03	0.095	0.059	
MG/L AS CU	REQUIREMENT														
IRON UNF.TOT.	ACTUAL	0.45	1.25	1.16	2.58	1.13	0.45	0.81	0.455	0.345	0.94	0.715	4.4	1.22	
MG/L AS FE	REQUIREMENT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12
FLUORIDE UNF.TOT.	ACTUAL	13.55	37.1	34.975	19.1	24.5	14.68	18.4	27.13	14.6	10.37	17.13	39.9	22.6	
MG/L (FFIDUT)	REQUIREMENT	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	12
TEMP RISE	ACTUAL	1	4	1	1	1	4	2.5	2.5	2.5	0.66	0.5	2.5	1.93	
DEG.C (FWTINC)	REQUIREMENT	5	5	5	5	5	5	5	5	5	5	5	5	5	0
NICKEL UNF.TOT.	ACTUAL	0.015	0.043	0.035	0.01	0.01	0.02	0.255	0.035	0.015	0.056	0.01	0.045	0.046	
MG/L AS NI	REQUIREMENT	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	9
NH3-N UNF.REAC	ACTUAL	15.7	11.83	21.47	12.92	11.32	6	14.9	14.76	9.365	4.98	4.88	42.28	14.2	
MG/L AS NH3	REQUIREMENT	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	12
LEAD UNF.TOT.	ACTUAL	0.099	0.034	0.025	0.05	0.05	0.05	0.04	0.045	0.015	0.27	0.02	0.105	0.067	
MG/L AS PB	REQUIREMENT														
PH	ACTUAL	10.01	10.01	10.01	13.38	10.48	10.04	9.9	10.57	9.96	9.56	9.815	11.04	10.4	
(PH)	REQUIREMENT														
PHENOLS UNF-REAC	ACTUAL	0.079	0.016	0.144	0.123	0.14	0.002	0.143	0.002	0.002	0.002	0.002	0.002	0.055	
MG/L PHENOL	REQUIREMENT	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	6
RESIDUE FILTERED	ACTUAL	1270	3769	3474	2630.4	3436	1090	2437	3636	1798	1358	1706	7540	2845	
MG/L (RSF)	REQUIREMENT	1133	1133	1133	1133	1133	1133	1133	1133	1133	1133	1133	1133	1133	12
RESIDUE PARTIC.	ACTUAL	133.5	235	154	18.5	65.3	163	100.5	106.5	70	196.13	84.5	227	129	
MG/L (RSP)	REQUIREMENT	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	12

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005884-00-0(0)    HALEY INDUSTRIES LTD.
CONTROL POINT: 0100 DATA FOR 1989                                  HALEY
FLOW/CONCENTRATION PARAMETERS                                                                                                REPORT DATE: 10 APR 91
                                                                                                                                 ANNUAL       TOTAL
                                  JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   AVERAGE  EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------
SOLVENT EXTRACT.    ACTUAL        5.99     4.58     5.59    6.375     8.33       11     10.4      1.2      2.7     1.33    0.875      3.8     5.18
MG/L (SOLEXT)       REQUIREMENT   1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37     1.37        9

SULPHITE UNF.REAC   ACTUAL         479   861.66      480      570      720     68.6    281.2      910      238     90.3    287.5   1162.5      512
MG/L AS SO2         REQUIREMENT    0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2      0.2       12

SULPHATE UNF.REAC   ACTUAL       717.5      879      750      751      523      619   1299.5      645      556      416    886.5   2693.5      895
MG/L AS SO4         REQUIREMENT    248      248      248      248      248      248      248      248      248      248      248      248      248       12

ZINC UNF.TOT.       ACTUAL        0.37     3.27    0.345     0.26    0.356     0.32     0.14    0.135     0.14     0.15    0.105    0.245    0.486
MG/L AS ZN          REQUIREMENT  0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038    0.038       12
NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
*********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 151 OUT OF 180, FOR A TOTAL COMPLIANCE RECORD OF 16% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Hemlo Gold Mines Inc.
& PLANT LOCATION: Marathon

IMIS NO.: 0042110205

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Approved treatment utilizing copper sulphate and ferric sulphate in addition to cyanide oxidation of effluent. Treated effluent dischargeto Lim Lake.

DISCHARGE TYPE: continuous during seasonal discharge

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): May 1984. Requirements established by 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. In compliance with all reported data.

REMEDIAL ACTIONS:

COMMENTS: No discharge in December.

Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/08/91

004211-02-0(5) HELMO GOLD MINES INC., GOLDEN GIANT MINE MARATHON REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002		0.001	
MG/L (ASUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
CYANIDE AVAIL	ACTUAL	0.48	0.67	0.8	0.46	0.21	0.14	0.03	0.04	0.05	0.15	0.88		0.356	
MG/L (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL	0.34	0.39	0.52	0.19	0.11	0.01	0.01	0.01	0.01	0.02	0.34		0.177	
MG/L (CCNFUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.07	0.022	0.032	0.086	0.085	0.182	0.018	0.042	0.022	0.027	0.054		0.058	
MG/L (CUUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
IRON UNF.TOT.	ACTUAL	0.373	0.437	0.188	0.204	0.282	0.212	0.214	0.15	0.297	0.245	0.278		0.262	
MG/L (FEUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0
MOLYBDEN UNF.TOT.	ACTUAL	0.34	0.367	0.188	0.5	0.56	0.47	0.626	0.222	0.265	0.18	0.168		0.353	
MG/L (MOUT)	GUIDELINE														
PH	ACTUAL	7.5	7.48	7.21	7.33	7.38	7.63	7.74	7.41	7.46	7.39	7.48		7.46	
(PH)	GUIDELINE														0
ANTIMONY UNF.TOT.	ACTUAL	0.433	0.5	0.42	0.44	0.3	0.525	0.3	0.575	0.43	0.382	0.208		0.41	
MG/L (SBUT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.06	0.018	0.016	0.012	0.015	0.013	0.016	0.025	0.02	0.01	0.01		0.019	
MG/L (ZNUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1		1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: I C I (Canada) Inc.
(previously reported as CIL Ltd)
Cornwall

IMIS NO.: 0000390401

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: The mercury cell process is used to produce caustic and chlorine gas from salt

EFFLUENT CHARACTERISTICS: Contains low levels of mercury and Suspended Solids (RSP).

EFFLUENT TREATMENT: All mercury-contaminated streams are collected and subjected to an efficient physical and chemical treatment to remove mercury before discharge.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Federal Fisheries Act regulations governing the amount of mercury discharged from mercury-cell chlor-alkali plants and Ontario guidelines for the direct discharge of effluent.

EXCEEDANCES: Yes, One exceedance of monthly RSP guideline.

REMEDIAL ACTIONS: Ministry staff have met with ICI to explore the single exceedance of RSP. Discussions have been ongoing regarding Zero Discharge in conjunction with the St. Lawrence River Remedial Action Plan (RAP). Further meetings are to be held to develop an interium reduction proposal.

COMMENTS: Company is part of MISA Inorganic Chemical Sector under which legally enforceable requirements will be set.

03/13/91

000039-04-0(1) ICI (CANADA) INC. (CORNWALL) CORNWALL REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2427	2412	2551	2603	3140	3691	4198	4137	3825	3757	3352	2641	3228	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	13.3	9	21	17	18	18	16.8	15.3	9.2	8.3	8.4	10.3	13.7	
KG /DAY (BOD5)	GUIDELINE	60.7	60.3	63.8	65.1	78.5	92.3	105	103.4	95.6	93.9	83.8	66	80.7	0
CHEM. OX DEMAND	ACTUAL	63	84	64	44	53	158	139.4	166.7	88	45	33.5	58	83.1	
KG /DAY (COD)	GUIDELINE														
MERCURY UNF.TOT.	ACTUAL	0.0205	0.0186	0.0284	0.0326	0.0459	0.0407	0.0308	0.0511	0.0265	0.0346	0.0314	0.033	0.033	
KG /DAY (HGUT)	REQUREMENNT	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0
PHOSPHOR UNF.TOT.	ACTUAL	0.66	0.9	1.1	1.3	0.69	1.3	0.97	2.03	0.73	0.56	0.54	0.58	0.947	
KG /DAY (PPUT)	GUIDELINE	2.43	2.41	2.55	2.6	3.14	3.69	4.2	4.14	3.83	3.76	3.35	2.64	3.228	0
RESIDUE PARTIC.	ACTUAL	58	43	36	29	41	55	101	74.1	360	79	47	32	79.6	
KG /DAY (RSP)	GUIDELINE	60.7	60.3	63.8	65.1	78.5	92.3	105	103.4	95.6	93.9	83.8	66	80.7	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: I C I (Canada) Inc. (previously reported as CIL Ltd) Courtright

IMIS NO.: 0000390203

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3721

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Anhydrous ammonia and nitric acid produced on site are used to produce ammonium nitrate, granular, prilled and sulphur coated urea.

EFFLUENT CHARACTERISTICS: Contains dissolved inorganic compounds such as phosphorus, ammonia, fluoride and nitrates.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None required.

COMMENTS:

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the Plant Final effluent to have been non-acutely lethal to test fish.

11/16/90

000039-02-0(3)   ICI (CANADA) INC. (COURTRIGHT)   COURTRIGHT   REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	350049	350049	350049	350049	350049	350049	350049	397415	436425	377912	252358		355859	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.8	7.9	7.7	7.7	7.8	7.7	7.8	7.7	7.7	7.7	7.7		7.75	
(PH)	GUIDELINE														0
FLUORIDE UNF.TOT.	ACTUAL	35	35	35	35	35	35	35	39.7	43.6	37.8	23.7		35.4	
KG /DAY (FFIDUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	116.3	311.3	422.4	325.5	297	243.9	108.4	93.7	190.6	204.8	170		226	
KG /DAY (NNHTFR)	GUIDELINE	3500	3500	3500	3500	3500	3500	3500	3974	4364	3779	2524		3559	0
NO2+NO3N FIL.REAC	ACTUAL	116.3	77.5	173.4	165.7	114	122.5	164.9	174.3	226.9	221.9			156	
KG /DAY (NNOTFR)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	3.9	3.9	3.7	3.9	3.9	3.9	3.9	4.3	4.8	4.2	2.6		3.91	
KG /DAY (PPUT)	GUIDELINE	350	350	350	350	350	350	350	397	436	378	252		356	0

NOTE: S/C - SEE COMMENT, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Copper Cliff Nickel Refinery

IMIS NO.: 0001690403

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Kelly Lake
INDIRECT: 70 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Various nickel products are made.

EFFLUENT CHARACTERISTICS: Contains dissolved sulphates of nickel and copper.

EFFLUENT TREATMENT: Raw effluent is treated in two ponds with lime to precipate the metals.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Nickel exceeded C of A guidelines (provincial) for February, March, April, November. PH exceeded guidelines for February. Suspended Solids limit was exceeded in February.

REMEDIAL ACTIONS: Inco Limited is presently investigating the feasibility of re-routing the effluent to the Coppercliff Tailings area.

COMMENTS:

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

01/11/91

000169-04-0(3) INCO LTD. NICKEL REFINERY COPPER CLIFF REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	774	2518	2905	2905	1052	1052	1052	1286	1529	1710	2110	1634	1711	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.1	10.7	10.3	9.9	10.2	9.4	10.2	10.1	9.8	9.1	9.6	9.7	9.93	
(PH)	GUIDELINE														1
COPPER UNF.TOT.	ACTUAL	0.16	0.53	0.38	0.35	0.09	0.12	0.12	0.22	0.11	0.07	0.36	0.1	0.218	
KG /DAY (CUUT)	GUIDELINE	0.77	2.52	2.91	2.91	1.05	1.05	1.05	1.29	1.53	1.71	2.11	1.63	1.71	0
IRON UNF.TOT.	ACTUAL	0.21	0.45	0.61	0.58	0.14	0.24	0.13	0.09	0.4	0.29	0.61	0.16	0.326	
KG /DAY (FEUT)	GUIDELINE	0.77	2.52	2.91	2.91	1.05	1.05	1.05	1.29	1.53	1.71	2.11	1.63	1.71	0
NICKEL UNF.TOT.	ACTUAL	0.39	1.11	1.42	1.63	0.4	0.17	0.15	0.14	0.55	0.5	1.5	0.72	0.723	
KG /DAY (NIUT)	GUIDELINE	0.77	2.52	2.91	2.91	1.05	1.05	1.05	1.29	1.53	1.71	2.11	1.63	1.71	0
NH3-N TOTAL	ACTUAL	0.43	0.18	1.74	2.35	0.32	0.4	0.21	0.13	0.57	0.34	0.84	0.82	0.694	
KG /DAY (NNHTUR)	GUIDELINE	7.74	25.18	29.05	29.05	10.52	10.52	10.52	12.86	15.29	17.10	21.10	16.34	17.11	0
RESIDUE PARTIC.	ACTUAL	1.24	44.32	40.7	11.6	1.3	3.8	1.1	9	5.2	4.4	6.8	2.3	11	
KG /DAY (RSP)	GUIDELINE	11.61	37.78	43.58	43.58	15.78	15.78	15.78	19.29	22.94	25.65	31.65	24.51	25.66	1
ZINC UNF.TOT.	ACTUAL	0.02	0.05	0.06	0.06	0.02	0.07	0.02	0.01	0.06	0.02	0.02	0.03	0.037	
KG /DAY (ZNUT)	GUIDELINE	0.77	2.52	2.91	2.91	1.05	1.05	1.05	1.29	1.53	1.71	2.11	1.63	1.71	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Copper Cliff Creek Wastewater Treatment Plant

IMIS NO.: 0001690304

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River to Spanish River
INDIRECT: 70 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Smelting and refining of nickel, copper and precious metals.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates and other metals.

EFFLUENT TREATMENT: Neutralization with lime.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The Certificate of Approval limits are: Iron 0.5 ppm, Nickel 0.5 ppm, Copper 0.2 ppm, Suspended Solids 15 ppm

EXCEEDANCES: The level of iron exceeded the C. of A limits in January and November. The level of nickel exceeded the C of A limits Jan, July and December.

REMEDIAL ACTIONS: A Certificate of Approval with conditions to address the present bypass situation and assess the need for increasing treatment capability has been issued to the company. The Certificate remains under Appeal.

COMMENTS:

One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluen t required to kill 50 % of the test fish by the end of the four days exposure was 51.0 %.

03/08/91

000169-03-0(4)   INCO LTD., COPPER CLIFF TREATMENT PLANT   COPPER CLIFF   REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	101401	97700	1025100	179000	151400	123100	56800	49100	72700	49400	78800	55100	169967	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.3	10.4	10.5	10.4	10.3	10.3	10.3	10.3	10.3	10.1	10.3	10.4	10.3	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	8.416	6.521	12.51	10.74	10.598	11.079	10.224	4.91	8.015	7.499	9.554	6.867	8.91	
KG /DAY (CUUT)	GUIDELINE	20.3	19.5	205.0	35.8	30.3	24.6	11.4	9.8	14.5	9.9	15.8	11.0	34.0	0
IRON UNF.TOT.	ACTUAL	62.133	28.724	68.805	78.76	27.252	48.009	28.4	18.658	22.482	10.843	43.088	22.844	38.3	
KG /DAY (FEUT)	GUIDELINE	50.7	48.9	512.6	89.5	75.7	61.6	28.4	24.6	36.4	24.7	39.4	27.6	85.0	2
NICKEL UNF.TOT.	ACTUAL	54.756	47.873	60.048	62.65	25.738	39.392	44.872	10.802	18.175	24.7	33.884	42.978	38.8	
KG /DAY (NIUT)	GUIDELINE	50.7	48.9	512.6	89.5	75.7	61.6	28.4	24.6	36.4	24.7	39.4	27.6	85.0	2
NH3-N TOTAL	ACTUAL	707.27	681.46	665.53	703.47	622.25	560.11	243.67	229.79	376.22	198.42	411.97	343.14	479	
KG /DAY (NNHTUR)	GUIDELINE	1014	977	10251	1790	1514	1231	568	491	727	494	788	551	1700	0
RESIDUE PARTIC.	ACTUAL	608.4	879.3	1251	1790	454.2	861.7	340.9	196.4	436.2	296.4	788	551	704	
KG /DAY (RSP)	GUIDELINE	1521	1466	15377	2685	2271	1847	852	737	1091	741	1182	827	2550	0
ZINC UNF.TOT.	ACTUAL	2.484	3.444	3.753	3.58	4.542	2.462	1.136	2.455	2.23	1.254	2.44	0.599	2.53	
KG /DAY (ZNUT)	GUIDELINE	101.4	97.7	1025.1	179.0	151.4	123.1	56.8	49.1	72.7	49.4	78.8	55.1	170.0	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.60

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Inco Ltd. Crean Hill Mine
& PLANT LOCATION: Copper Cliff

IMIS NO.: 0001690809

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: **DIRECT:** Unnamed creek to Monk Lake.
INDIRECT: Vermillion River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains copper, nickel and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings pond is neutralized with lime.

DISCHARGE TYPE: Intermittent to become continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: pH exceeded guideline in March and April.

REMEDIAL ACTIONS:

COMMENTS: Tailings effluent is batch treated with lime. No changes to this system are planned.

One trout bioassay conducted in 1989, indicated the pond effluent to have been non-acutely lethal to test fish

11/09/90

000169-08-0(9) INCO LTD., CREAN HILL MINE COPPER CLIFF REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1417	1110	8000	1100	950	817	409	273	364	308	419	629	1316	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.6	10.1	11.4	11.6	10.5	10	9.5	8.8	9.2	8.4	8.9	8.7	9.81	
(PH)	GUIDELINE														2
COPPER UNF.TOT.	ACTUAL	0.17	0.18	0.56	0.11	0.07	0.03	0.01	0.02	0.004	0.043	0.059	0.094	0.113	
KG /DAY (CUUT)	GUIDELINE	1.42	1.11	8.00	1.10	0.95	0.82	0.41	0.27	0.36	0.31	0.42	0.63	1.32	0
IRON UNF.TOT.	ACTUAL	0.2	0.11	0.56	0.09	0.1	0.06	0.03	0.03	0.004	0.031	0.042	0.063	0.11	
KG /DAY (FEUT)	GUIDELINE	1.42	1.11	8.00	1.10	0.95	0.82	0.41	0.27	0.36	0.31	0.42	0.63	1.32	0
NICKEL UNF.TOT.	ACTUAL	0.26	0.18	1.2	0.57	0.12	0.05	0.03	0.02	0.011	0.037	0.05	0.107	0.22	
KG /DAY (NIUT)	GUIDELINE	1.42	1.11	8.00	1.10	0.95	0.82	0.41	0.27	0.36	0.31	0.42	0.63	1.32	0
NH3-N TOTAL	ACTUAL	2.69	3	0.8	0.33	0.76	0.4	0.16	0.03	0.044	0.092	0.126	0.566	0.75	
KG /DAY (NNHTUR)	GUIDELINE	14.2	11.1	80.0	11.0	9.5	8.2	4.1	2.7	3.6	3.1	4.2	6.3	13.16	0
RESIDUE PARTIC.	ACTUAL	3.1	6.4	16	4.6	12.4	1	0.2	0.2	0.437	0.246	0.335	0.629	3.8	
KG /DAY (RSP)	GUIDELINE	21.3	16.7	120.0	16.5	14.3	12.3	6.1	4.1	5.5	4.6	6.3	9.4	19.75	0
ZINC UNF.TOT.	ACTUAL	0.02	0.01	0.24	0.04	0.01	0.04	0.04	0.01	0.004	0.009	0.013	0.019	0.038	
KG /DAY (ZNUT)	GUIDELINE	1.42	1.11	8.00	1.10	0.95	0.82	0.41	0.27	0.36	0.31	0.42	0.63	1.32	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Garson Mine

IMIS NO.: 0001690700

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River
INDIRECT: 86 km. to Lake Huron (North Channel) to Spanish River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Continuous from mine water treatment system

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Nickel exceeded guideline in January, April, May. Suspended solids exceeded the guideline in February.

REMEDIAL ACTIONS: Dredging of the ponds was completed in 1989 in order to address the problem.

COMMENTS: The mine was not being operated in 1988; however early in 1989 mining operations resumed.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

01/11/91

000169-07-0(0) INCO LTD., GARSON MINE COPPER CLIFF REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1445	1916	1862	2045	1934	2656	2241	1954	719	701	898	2911	1774	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.8	10.1	8.8	7.9	8.6	9.2	8.8	9.6	9.7	10.1	10.2	11	9.48	
(PH)	GUIDELINE														1
COPPER UNF.TOT.	ACTUAL	0.2	0.33	0.1	0.44	0.24	0.25	0.1	0.26	0.06	0.18	0.21	0.27	0.22	
KG /DAY (CUUT)	GUIDELINE	1.45	1.92	1.86	2.05	1.93	2.66	2.24	1.95	0.72	0.70	0.90	2.91	1.77	0
IRON UNF.TOT.	ACTUAL	0.07	1.68	0.28	0.55	0.39	0.23	0.25	0.14	0.04	0.07	0.07	0.44	0.351	
KG /DAY (FEUT)	GUIDELINE	1.45	1.92	1.86	2.05	1.93	2.66	2.24	1.95	0.72	0.70	0.90	2.91	1.77	0
NICKEL UNF.TOT.	ACTUAL	3.84	1.62	1.69	3.39	2.68	2.61	0.59	0.38	0.11	0.19	0.23	0.91	1.52	
KG /DAY (NIUT)	GUIDELINE	1.45	1.92	1.86	2.05	1.93	2.66	2.24	1.95	0.72	0.70	0.90	2.91	1.77	3
NH3-N TOTAL	ACTUAL	0.39	0.54	0.33	0.5	1.31	0.85	0.43	0.28	0.12	0.12	0.25	0.7	0.485	
KG /DAY (NNHTUR)	GUIDELINE	14.45	19.16	18.62	20.45	19.34	26.56	22.41	19.54	7.19	7.01	8.98	29.11	17.74	0
RESIDUE PARTIC.	ACTUAL	14.64	75.87	10.38	15.39	11.35	23.69	1.34	7.33	1.68	4.17	10.6	28.67	17.1	
KG /DAY (RSP)	GUIDELINE	21.7	28.7	27.9	30.7	29.0	39.8	33.6	29.3	10.8	10.5	13.5	43.7	26.60	1
ZINC UNF.TOT.	ACTUAL	0.03	0.07	0.04	0.05	0.07	0.09	0.11	0.05	0.02	0.08	0.03	0.1	0.062	
KG /DAY (ZNUT)	GUIDELINE	1.45	1.92	1.86	2.05	1.93	2.66	2.24	1.95	0.72	0.70	0.90	2.91	1.77	0

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Inco Ltd.
Levack Tailings Area

IMIS NO.: 0001690106

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY:
DIRECT: Onaping R.
INDIRECT: 113 km to Lake Huron

DESCRIPTION OF ACTIVITY: Mining and crushing operations.

EFFLUENT CHARACTERISTICS: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings is limed prior to discharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES**: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: PH exceeded guidelines in April. Suspended Solids exceeded guidelines February and March .

REMEDIAL ACTIONS: An automatic lime addition system with continuous pH monitoring was installed in November 1989.

COMMENTS: One trout bioassay conducted in 1989, indicated the tailing pond effluent to have been non-acutely lethal to test fish.

03/21/91

000169-01-0(6) INCO LTD., LEVACK MINE COPPER CLIFF REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3694	930	4844	1981	490	1125	489	0	100	192	265	425	1321	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.3	9.3	10.5	12	10.4	9.5	8.4		9.3	9.1	9.6	10.5	9.9	
(PH)	GUIDELINE														1
COPPER UNF.TOT.	ACTUAL	0.55	0.15	0.34	0.1	0.05	0.05	0.01		0.001	0.002	0.05	0.047	0.123	
KG /DAY (CUUT)	GUIDELINE	3.69	0.93	4.84	1.98	0.49	1.13	0.49		0.10	0.19	0.27	0.43	1.32	0
IRON UNF.TOT.	ACTUAL	0.7	0.37	1.55	0.53	0.17	0.1	0.1		0.002	0.039	0.88	0.378	0.438	
KG /DAY (FEUT)	GUIDELINE	3.69	0.93	4.84	1.98	0.49	1.13	0.49		0.10	0.19	0.27	0.43	1.32	0
NICKEL UNF.TOT.	ACTUAL	0.37	0.36	0.63	0.2	0.07	0.07	0.08		0.009	0.017	0.042	0.072	0.175	
KG /DAY (NIUT)	GUIDELINE	-	-	-	-	-	-	-		-	-	-	-		
NH3-N TOTAL	ACTUAL	3.14	2.37	15.5	5.69	0.49	1.04	0.59		0.63	0.19	0.69	2.59	2.99	
KG /DAY (NNHTUR)	GUIDELINE	36.9	9.3	48.4	19.8	4.9	11.3	4.9		1.0	1.9	2.7	4.3	13.21	0
RESIDUE PARTIC.	ACTUAL	46.55	14	128	24	7	4	0.6		0.3	0.5	1.5	5.4	21.1	
KG /DAY (RSP)	GUIDELINE	55.4	13.9	72.7	29.7	7.4	16.9	7.3		1.5	2.9	4.0	6.4	19.82	2
ZINC UNF.TOT.	ACTUAL	0.07	0.02	0.15	0.04	0.01	0.05	0.01		0.002	0.002	0.013	0.013	0.035	
KG /DAY (ZNUT)	GUIDELINE	3.69	0.93	4.84	1.98	0.49	1.13	0.49		0.10	0.19	0.27	0.43	1.32	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 66, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Nolin Creek Wastewater Treatment Plant

IMIS NO.: 0001690601

MOE REGION: Northeast

DISTRICT: Sudbury

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Nolin Creek to Junction Creek to Vermillion River to Spanish River
INDIRECT: 77 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Metallurgical complex that smelts and refines nickel, copper and associated metals from concentrates.

EFFLUENT CHARACTERISTICS: Contains a variety of dissolved metal salts.

EFFLUENT TREATMENT: Neutralized by addition of lime.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): The Certificate of Approval limits; iron - 0.5 ppm, nickel - 0.5 ppm, copper 0.2 ppm, suspended solids 15 ppm. The original design information which was the basis for the Certificate of Approval limits is being reviewed.

EXCEEDANCES: Copper exceeded C. of A. in May, June and October. Iron exceeded C. of A in April, June and November. Nickel exceeded C of A in October and November.

REMEDIAL ACTIONS: A Certificate of Approval with conditions requiring a study to address the present bypassing situation and assess the need for increased treatment capability has been issued to the company. The Certificate remains under Appeal.

COMMENTS:

11/13/90

000169-06-0(1)   INCO LTD. NOLIN CREEK   COPPER CLIFF   REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8480	2040	8010	28420	10590	12420	0	0	0	6240	8640	4550	9932	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.5	10.6	10.6	10.5	10.5	10.6				10.4	10.4	10.6	10.5	
(PH)	GUIDELINE														0
COPPER UNF.TOT.	ACTUAL	0.367	0.075	0.721	5.116	2.542	2.981				7.336	1.63	0.121	2.32	
KG /DAY (CUUT)	REQUIREMENT	1.70	0.41	1.60	5.68	2.12	2.48				1.25	1.73	0.91	1.99	3
IRON UNF.TOT.	ACTUAL	2.648	0.523	2.964	23.589	4.554	7.328				1.98	6.497	1.25	5.7	
KG /DAY (FEUT)	REQUIREMENT	4.24	1.02	4.01	14.21	5.30	6.21				3.12	4.32	2.28	4.97	3
NICKEL UNF.TOT.	ACTUAL	1.781	0.326	2.003	7.673	3.071	4.099				5.242	4.752	0.728	3.3	
KG /DAY (NIUT)	REQUIREMENT	4.24	1.02	4.01	14.2	5.30	6.21				3.12	4.32	2.28	4.97	2
NH3-N TOTAL	ACTUAL	17.829	4.289	16.841	25.01	25.946	34.155				26.52	34.698	17.984	22.6	
KG /DAY (NNHTUR)	GUIDELINE	84.8	20.4	80.1	284.2	105.9	124.2				62.4	86.4	45.5	99.32	0
RESIDUE PARTIC.	ACTUAL	33.92	6.12	40.05	142.1	42.36	74.52				68.64	77.76	40.95	58.5	
KG /DAY (RSP)	REQUIREMENT	127.2	30.6	120.15	426.3	158.85	186.3				93.6	129.6	68.25	148.98	0
ZINC UNF.TOT.	ACTUAL	0.174	0.132	0.32	0.568	0.106	0.248				0.184	0.261	0.024	0.224	
KG /DAY (ZNUT)	GUIDELINE	8.48	2.04	8.01	28.4	10.6	12.4				6.24	8.64	4.55	9.93	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.60

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 63, FOR A TOTAL COMPLIANCE RECORD OF 87% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Metals Ltd.
& PLANT LOCATION: Port Colborne

IMIS NO.: 0001600105

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 295

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Electrolytic processes are used to recover pure metals like nickel, copper, silver, gold, etc.

EFFLUENT CHARACTERISTICS: Contains total suspended solids and dissolved metals.

EFFLUENT TREATMENT: Filtration plant.

DISCHARGE TYPE: open outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : (1976)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Company developing pH control system for storm runoff conditions to reduce pH of runoff.

03/08/91

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000160-01-0(5)    INCO LTD. REFINERY                                          PORT COLBORNE                                                        REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA                                                                                                                   ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC    AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL           12400   11300   13000   14100   15100   14500    7600   10400   13000   11300   12400    8700    11983
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL            10.6    10.6    10.5    10.5    10.5    10.5    10.1    10.1    10.5    10.6    10.5    10.5     10.5
(PH )               GUIDELINE                                                                                                                           0

NICKEL UNF.TOT.       ACTUAL             2.3     1.7     2.3     2.6     3.7     3.9     1.6     1.7     2.6     2.3     3.1     1.9     2.48
KG /DAY (NIUT )     REQUIREMENT         12.4    11.3      13    14.1    15.1    14.5     7.6    10.4      13    11.3    12.4     8.7       12           0

RESIDUE PARTIC.       ACTUAL            58.7    43.8    71.7    57.5    47.9    44.4    15.9    13.8    32.7    30.7    51.6    23.8       41
KG /DAY (RSP )      REQUIREMENT          186     170     195     212     227     218     114     156     195     170     186     131      180           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  11.6
**********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: INCO Limited.
& PLANT LOCATION: Shebandowan Complex

IMIS NO.: 0001600105

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE:

RECEIVING WATERBODY: DIRECT: Shebandowan River. to Kaministiquia R.
INDIRECT: 130 km to Lake Superior.

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT CHARACTERISTICS: Contains heavy metals, suspended solids and pH.

EFFLUENT TREATMENT: Polishing lagoon (tailings pond)

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: MOE guidelines : Guidelines for the Environmental Control in the Ontario Mineral Industry (1981)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Operation resumed in February 1989. No flow measurement is availabe for 1989. As a result of MISA requirements, flow measurement will be available in 1990.

One trout bioassay conducted in 1989, indicated the tailings decant to have been non-acutely lethal to test fish.

03/08/91

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000169-09-0(8)    INCO LTD. SHEBANDOWAN PROPERTY                                    SHEBANDOWAN                                      REPORT DATE: 1 MAY 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                             ANNUAL       TOTAL
FLOW/CONCENTRATION PARAMETERS         JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
ALK LAB TOT.          ACTUAL                             89    90.53    77.58    71.88    75.06    77.36    83.28    82.13    84.33       84     81.5
MG/L AS CACO3       GUIDELINE

COPPER UNF.TOT.       ACTUAL                           0.02     0.01     0.02     0.01     0.01     0.01     0.01     0.01     0.03     0.01    0.014
MG/L AS (CUUT)      REQUIREMENT                           1        1        1        1        1        1        1        1        1        1        1           0

IRON UNF.TOT.         ACTUAL                           0.17     0.15     0.32     0.09     0.09     0.12     0.09     0.35     0.17     0.04    0.159
MG/L AS (FEUT)      REQUIREMENT                           1        1        1        1        1        1        1        1        1        1        1           0

NICKEL UNF.TOT.       ACTUAL                           0.19     0.16     0.19     0.17     0.13     0.16     0.15     0.17      0.2     0.21    0.173
MG/L (NIUT)         GUIDELINE                             1        1        1        1        1        1        1        1        1        1        1           0

PH                    ACTUAL                            7.6     7.05     7.57     8.08     7.81     7.66     7.71      7.7     7.63     7.57     7.64
(PH )               GUIDELINE                                                                                                                                  0

SULPHATE UNF.REAC     ACTUAL                          358.0    357.5    297.2    387.8    390.6    390.4    424.6    399.7    393.0    468.0    386.7
MG/L (SSO4UR)       GUIDELINE

ZINC UNF.TOT.         ACTUAL                           0.01     0.01     0.03     0.02     0.01     0.01     0.01     0.02     0.02        0    0.014
MG/L (ZNUT )        GUIDELINE                             1        1        1        1        1        1        1        1        1        1        1           0
NOTE: S/C -SEE COMMENT,  O* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  10.60
*******************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  50, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: International Minerals and Chemicals
& PLANT LOCATION: Dunnville

IMIS NO.: 0001500008

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk/Brant

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 372

RECEIVING WATERBODY: DIRECT: Grand River
INDIRECT: 3 km to Lake Erie

DESCRIPTION OF ACTIVITY: Phosphate ore, sulphuric acid and phosphoric acid were used to make fertilizer in the past. Manufacturing activities now ceased. Effluent is storm runnoff from gypsum ponds.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Lime precipitation.

DISCHARGE TYPE: continuous at shoreline

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : Phosphorus 4.54 kg/day

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Since plant shut down, phosphorus loadings have continued to decline. WWTP is operated to treat phosphorus in storm runnoff. Company is preparing decommissioning plan for closure of gypsum ponds.

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/08/91

000150-00-0(8)   INTERNATIONAL MINERALS AND CHEMICALS CORPORATION   DUNNVILLE   REPORT DATE: 25 FEB 91
CONTROL POINT: 0300 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL			2611	3307	3345	3479	3358	3417	3261	2546	1925	2227	2948	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL			9.22	9.12	9.09	9.13	9.16	9.07	9.03	8.95	9.03	9.13	9.09	
(PH)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL			1.82	2.01	1.84	1.46	1.51	2.01	2.74	2.07	1.61	1.36	1.84	
KG /DAY (PPUT)	REQUIREMENT			4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: James River-Marathon, Ltd. Marathon

IMIS NO.: 0000850008

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Kraft Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Pulp is produced from chips (both hardwood and softwood) by the kraft pulping process. The pulp is bleached. Crude tall oil is removed and sold.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and many organic (some chlorinated) compounds.

EFFLUENT TREATMENT: Primary clarifier on high-solids wastewaters and foam barrier remove solids. The woodroom (hardwood debarking) is dry.

DISCHARGE TYPE: Continuous through a diffuser.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (October 25,1989) Requires Reductions in Total Suspended Solids, Biochemical Oxygen demand and Adsorbable Organic Halides by December 31,1991 as follows:
BOD to 11.8 tonnes, TSS to 3.3 tonnes allaveraged over 30 consecutive working days and AOX to 2.5 kilograms/ADT of production.

EXCEEDANCES: None. Company is in compliance with all reported data.

REMEDIAL ACTIONS:

COMMENTS: Two trout bioassays conducetd in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of four days exposure were 17.4 % and 14.1 %.

02/27/91

000085-00-0(8) JAMES RIVER-MARATHON, LTD. MARATHON REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	56820	59350	60790	60780	58760	56860	58770	62130	62800	60790	65850	60300	60333	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	12020	13250	13360	14160	11660	10720	13040	12320	13110	11920	12520	11110	12407	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
RESIDUE PARTIC.	ACTUAL	2220	2004	2017	2080	2940	2880	2550	2540	2430	2850	3390	2977	2573	
KG /DAY (RSP)	REQUIREMENT	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100 IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: J. M. Schneider Inc.
& PLANT LOCATION: Ayr

IMIS NO.: 0001440007

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1011, 1012

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 196 km to Lake Erie

DESCRIPTION OF ACTIVITY: Beef and pork is packaged and poultry is deep fried and packaged for retail sales.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Grease skimming, flow equalization, dissolved air flotation, aeration, sedimentation and chlorination.

DISCHARGE TYPE: seven day continuous flow through a submerged outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL : Monthly requirements are those of Certificate of Approval, revised in November 1986.

EXCEEDANCES: None, company is in compliance.

REMEDIAL ACTIONS: Company applied in October 89 for approval to upgrade its treatment plant by replacing existing (marginal) clarifier with a new, larger unit , for future production increase . MOE issued new C. of A. in November 1990. New clarifier is on-stream.

COMMENTS: Reported loadings are based on measured flowrate.

03/08/91

000144-00-0(7)   J.M.SCHNEIDER INC   AYR   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	53.17	57.67	93.65	75.13	68.09	93.88	95.41	51.44	82.01	88.8	87.49	65.8	76	
M3 /DAY (FTFLOW)	REQUIREMENT	363	363	363	363	363	363	363	363	363	363	363	363	363	0
PH	ACTUAL	7.04	7.07	7.37	7.05	7.31	7.44	7.23	7.45	6.86	7	7.28	7.2	7.19	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	0.27	0.38	0.59	0.38	0.34	0.47	0.48	0.69	0.38	0.44	0.54	0.89	0.49	
KG /DAY (BOD5)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
NH3-N TOTAL	ACTUAL	0.14	0.31	0.54	0.01	0.08	0.19	0.6	0.74	0.58	0.61	0.04	0.15	0.333	
KG /DAY (NNHTFR)	REQUIREMENT	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	0
K'DAHL N TOTAL	ACTUAL	0.25	0.88	0.73	0.02	0.1	0.21	0.61	0.77	0.59	0.78	0.05	0.26	0.438	
KG /DAY (NNTKUR)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
PHOSPHOR UNF.TOT.	ACTUAL	0	0	0.04	0.01	0.01	0.02	0.01	0	0.01	0.03	0.04	0.01	0.015	
KG /DAY (PPUT)	REQUIREMENT	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0
RESIDUE PARTIC.	ACTUAL	0.17	0.71	1.49	0.2	0.36	0.83	1.1	0.46	0.53	1.02	0.93	1.5	0.775	
KG /DAY (RSP)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0
SOLVENT EXTRACT.	ACTUAL	0.09	0.14	0.39	0.32	0.21	0.59	0.72	0.7	0.77	1.1	0.53	3.64	0.767	
KG /DAY (SOLEXT)	REQUIREMENT	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Kimberly-Clark of Canada
& PLANT LOCATION: Huntsville

IMIS NO.: 0000830109

MOE REGION: Central

DISTRICT: Gravenhurst

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT:** Bigeast River
INDIRECT: Muskoka River

DESCRIPTION OF ACTIVITY: Converts pulp into personal paper products

EFFLUENT CHARACTERISTICS: Practically zero effluent

EFFLUENT TREATMENT: Conventional and tertiary

DISCHARGE TYPE: Intermittent

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** RSF and PPUT Requirement set by Certificate of Approval.
MOE OR FEDERAL GUIDELINES: COD is industry wide guideline.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: This plant is subject to MISA, pulp and paper sector.

03/12/91

000083-01-0(9) KIMBERLY-CLARK CANADA INC. HUNTSVILLE REPORT DATE: 29 MAY 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	901	926	885	894	93	62	0	35	0	32	754	1102	474	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	66	56	60	64	8	4		3		2	59	101	42.3	
KG /DAY (COD)	GUIDELINE	-	-	-	-	-	-		-		-	-	-		
PHOSPHOR UNF.TOT.	ACTUAL	0.15	0.17	0.17	0.17	0.03	0.01				0.01	0.13	0.22	0.118	
KG /DAY (PPUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3				0.3	0.3	0.3	0.3	0
RESIDUE PARTIC.	ACTUAL	3.2	3.3	3.2	1.9	0.5	0.7					1.3	2.2	2.04	
KG /DAY (RSP)	REQUIREMENT	151	151	151	151	151	151					151	151	151	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 17, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

RESIDUE PARTIC. (RSP) WAS ERRONEOUSLY REPORTED IN PREVIOUS YEARS AS RESIDUE FILTERED (RSF)

WASTEWATER DISCHARGE SUMMARY

1989

COMPANY NAME: **& PLANT LOCATION:**	Kimberly Clark of Canada Ltd. St. Catharines	**IMIS NO.**: 0000830208
MOE REGION:	West Central	**DISTRICT**: Welland
INDUSTRIAL SECTOR:	Pulp and Paper Mill	**SIC CODE**: 271
RECEIVING WATERBODY:	**DIRECT**: Old Welland Canal to Twelve Mile Creek. **INDIRECT**: 10.0 Km to Lake Ontario.	

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are made into tissue and special papers.

EFFLUENT CHARACTERISTICS: Residual solids produce a turbid effluent.

EFFLUENT TREATMENT: "Saveall" screens precede primary clarifier and retention ponds for solids removal.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES**: Target loads set by Pulp and Paper Committee consistent with best practicable technology.

EXCEEDANCES: In compliance with guidelines.

REMEDIAL ACTIONS:

COMMENTS: Company submitted proposal for modifications to wastewater treatment in August 1990. Modifications include installation of aerators in polishing lagoons. Application for C of A for modifications submitted in Nov 1990. New C. of A. expected early in 1991.

Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/08/91

000083-02-0(8) KIMBERLY-CLARK CANADA INC. ST. CATHARINES REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9556	10069	10123	9425	9197	10053	10197	8647	10376	10782	10304	9219	9829	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	358.8	447.5	323	266.7	222.2	241.4	196.9	63.6	217.7	303.1	194.5	204.3	253	
KG /DAY (BOD5)	GUIDELINE	478	503	506	471	460	503	510	432	519	539	515	461	491	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000083-02-0(8) KIMBERLY-CLARK CANADA INC. ST. CATHARINES REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL	83.1	56.4	59.7	145.1	122.3	143.8	154	149.6	181.6	158.5	219.5	174.2	137.3	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

GROSS DATA PROVIDED FOR COMPARISON PUROSES

000083-02-0(8) KIMBERLY-CLARK CANADA INC. ST. CATHARINES REPORT DATE: 25 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - NET DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE FILTERED	ACTUAL	686.3	644.7	555.3	659.5	555	569.3	624.2	336.6	876.6	737.1	843.8	842.3	661	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	31.9	27.8	26.8	0	0	3.5	14.6	0	1.7	1	0	11.8	9.93	
KG /DAY (RSP)	GUIDELINE	478	503	506	471	460	503	510	432	519	539	515	461	491	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Kimberly-Clark of Canada Ltd.
& PLANT LOCATION: Terrace Bay

IMIS NO.: 0000830000

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Blackbird Creek
INDIRECT: Lake Superior (Jackfish Bay)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs are made into bleached pulp by the kraft pulping process

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark and wood fibres) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifiers, spill collection, aeration lagoon. Two clarifiers remove solids and foul condensates are steam stripped to remove odourous organics.
Aeration lagoon reduced BOD and toxicity.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): An amended Control Order was issued in 1988 which expires in 1991. The discharge of BOD is not to exceed 30 kg/ADMT and by May 31, 1990 is to be further reduced to 10 kg/ADMT. The suspended solids (RSP) is not to exceed 7.5 tonnes per day and by June 30, 1989 is to be further reduced to 7.0 tonnes per day. The effluent is to meet toxicity requirements by October, 1989.

MOE OR FEDERAL GUIDELINES: MOE guideline used for phosphorus.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: The secondary treatment system was completed and put in operation in October of 1989.

Five trout bioassays prior to operation of the secondary treatment indicated the final effluent to be accutely lethal to the test fish. Statistically, the percentage effluent require to kill 50% of the test fish by the end of the four days exposure, ranged from 25.3% to 51.0%. Two trout bioassays conducted following completion of secondary treatment indicated the final effluent to have been non-lethal to test fish.

11/16/90

000083-00-0(0) KIMBERLY-CLARK CANADA INC. TERRACE BAY REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	102840	101180	112920	112600	114000	118300	117500	116300	118500	105100	93750	99140	109344	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	21230	19440	21580	25900	18700	28500	24000	22700	23000	3100	1120	2330	17633	
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0
RESIDUE PARTIC.	ACTUAL	5000	4000	4930	3750	4470	4290	5080	4720	3350	2090	2120	2740	3878	
KG /DAY (RSP)	REQUIREMENT	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Kraft Foods Ltd. Ingleside	IMIS NO.: 0001940006
MOE REGION:	Southeast	DISTRICT: Cornwall
INDUSTRIAL SECTOR:	Food and Beverage	SIC CODE: 104
RECEIVING WATERBODY:	DIRECT: Hoople Creek INDIRECT: 2.0 km to St. Lawrence River	

DESCRIPTION OF ACTIVITY: Milk is made into cheese

EFFLUENT CHARACTERISTICS: Effluent is generated by the cleaning of cheese making equipment and contains dissolved and suspended milk solids.

EFFLUENT TREATMENT: Extended aeration using diffused air.

DISCHARGE TYPE: Continuous via a ditch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Guideline for the Direct Discharge of Effluents.

EXCEEDANCES: Yes. Almost all targets set for BOD5, RSP (suspended solids) and PPUT (phosphorus) were exceeded.

REMEDIAL ACTIONS: Kraft has completed the first stage of the treatment plant upgrading, by installing an anaerobic pre-treatment stage. The company has entered into an agreement with the Township of Osnabruck for a combined treatment facility that will be designed to meet Ministry requirements.

COMMENTS: Company improved operations of existing treatment works gradually through 1989 to where, in the last few months, it was in compliance for BOD. Continuing improvements in effluent quality occurred with the completion of the first stage of treatment plant upgrading in April, 1990.

03/08/91

000194-00-0(6) KRAFT LIMITED INGLESIDE REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2407	2410	2340	2321	1800	2326	2226	2282	2300	2647	1800	2236	2258	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	402.7	412.8	440	327.5	50.8	111.7	30.7	75.1	76.8	84.7	30.4	53.9	175	
KG /DAY (BOD5)	GUIDELINE	60.2	60.3	58.5	58	45	58.2	55.7	57.1	57.5	66.2	45	55.9	56.4	9
PHOSPHOR UNF.TOT.	ACTUAL	24.3	26.5	21.7	17.8	0.9	8.1	7.4	8	9	24.9	5.6	8.3	13.5	
KG /DAY (PPUT)	GUIDELINE	2.41	2.41	2.34	2.32	1.8	2.33	2.23	2.28	2.3	2.65	1.8	2.24	2.26	11
RESIDUE PARTIC.	ACTUAL	398	270	160.7	290	18.7	267	84.6	75.1	44.4	121	61.4	61	154	
KG /DAY (RSP)	GUIDELINE	60.2	60.3	58.5	58	45	58.2	55.7	57.1	57.5	66.2	45	55.9	56.4	10

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 30 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 17% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Lac D' Amiante Du Quebec Ltee.
& PLANT LOCATION: Aquarius Mine
Porcupine

IMIS NO.: 0001110005

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining and Smelting, Refining

SIC CODE: 0591

RECEIVING WATERBODY: DIRECT: Lagare Lake
INDIRECT: James Bay

DESCRIPTION OF ACTIVITY: Gold mining and milling to a concentrate.

EFFLUENT CHARACTERISTICS: suspended solids.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): September 29, 1987.

EXCEEDANCES: Suspended solids (RSP) - 2 , Zinc 1 .

REMEDIAL ACTIONS: Suspended solids discharge regulated with modified internal tailings management plan to ensure compliance. Prior to milling operations restarting, a lift will be added to tailings area, increasing retention time.

COMMENTS: As of August 4, 1989 mill is on care and maintenance program. Shaft dewatering is discharged to tailings basin.

Two trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/21/91

001110-00-0(5)   LAC D'AMIANTE DU QUEBEC LTD AQUARIUS MIN   SCHREIBER   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.0001	0.0001	0.0001	0.001	0.0001	0.05	0.05	0.07	0	0	0	0.01	0.015	
MG/L AS AS	GUIDELINE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
COPPER UNF.TOT.	ACTUAL	0	0.025	0.025	0.025	0.025	0.03	0.01	0.01	0	0	0	0.01	0.013	
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NICKEL UNF.TOT.	ACTUAL	0	0.025	0.025	0.025	0.081	0.037	0.025	0.01	0.01	0	0	0.02	0.022	
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL	3.38	1.87	2.87	1.07	0.62	0.46	0.46	0.4	0.4	1.5	0.4	0.5	1.16	
MG/L (NNH3FR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10	10	10	10	0
LEAD UNF.TOT.	ACTUAL	0.025	0.025	0.025	0.025	0.25	0.044	0.062	0.03	0	0	0	0.07	0.05	
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
PH	ACTUAL	7.7	7.7	7.7	7.6	7.5	7.4	7.6	7.1	7.6	8.2	7.4	7.2	7.56	
(PH)	GUIDELINE														0
PHOSPHOR FIL.TOT.	ACTUAL	0.47	0.55	0.91	0.58	0.18	0.44	0.55	0.5	0.1	1.1	0.1	0.25	0.48	
MG/L AS P (PPFT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL	2	3	0	2	63	11	22	7	14	10	14	12.3	13.4	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	2
RESIDUE TOTAL	ACTUAL	344	345	341	214	32	276	337	169	256	225	372	463	281	
MG/L (RST)	GUIDELINE														
MG/L	ACTUAL	13	25	4	7	2	11	17	34	39	26	37	30.8	20	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0	0.025	0.025	0.03	0.025	0.028	2.44	0.06	0	0	0	0.03	0.22	
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 108, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Lac Minerals (Macassa Div.)
& PLANT LOCATION: Kirkland Lake

IMIS NO.: 0001410000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Amikougami Cr.
INDIRECT: Blanche River

DESCRIPTION OF ACTIVITY: Gold mining, milling and recovery using Cyanide Circuit Recovery.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts of copper, nickel, zinc etc.

EFFLUENT TREATMENT: Natural degradation.

DISCHARGE TYPE: seasonal.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): A Certificate of Approval for a two stage program to improve effluent quailty has been issued.

MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981 by C of A.

EXCEEDANCES: Cyanide 1, iron 3, copper 1 , suspended solids 3.

REMEDIAL ACTIONS: The treatment plant commenced operation on April 25,1989. Effluent in compliance in 1990.

COMMENTS: The company effluent discharge took place in April to July and November to December,

03/18/91

000141-00-0(0) LAC MINERALS LTD., MACASSA DIV. KIRKLAND LAKE
CONTROL POINT: 0100 DATA FOR 1989 REPORT DATE: 28 FEB 91

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL			0.13	3.91	1.75	0.25	0.06	0.04	0.04	0.11	0.04	1.02	0.74	
MG/L (CCNAUR)	GUIDELINE			2	2	2	2	2	2	2	2	2	2	2	1
COPPER UNF.TOT.	ACTUAL			0.01	0.9	1.28	0.63	0.12	0.11	0.06	0.05	0.01	0.35	0.35	
MG/L (CUUT)	REQUIREMENT			1	1	1	1	1	1	1	1	1	1	1	1
IRON UNF.TOT.	ACTUAL			0.84	1.29	1.19	0.82	0.33	0.26	0.36	3.32	0.35	0.88	0.96	
MG/L AS FE	GUIDELINE			1	1	1	1	1	1	1	1	1	1	1	3
PH	ACTUAL			7.85	7.85	8.4	9.05	8.4	7.6	7.7	7.6	7.85	7.83	8.01	
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL			26	18.75	6	6.63	6.5	5	5	80	5	5.5	16.44	
MG/L (RSP)	GUIDELINE			15	15	15	15	15	15	15	15	15	15	15	3

NOTE: $/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 50, FOR A TOTAL COMPLIANCE RECORD OF 84% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: LaFarge Canada Inc.
& PLANT LOCATION: Bath

IMIS NO.: 0021390109

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Industrial Minerals (Cement Manufacture)

SIC CODE:

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Makes cement.

EFFLUENT CHARACTERISTICS: BOD5, Suspended solids and total phosphorus typical of domestic sewage.

EFFLUENT TREATMENT: sewage lagoon.

DISCHARGE TYPE: Continous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Operational objectives for conventional lagoon treatment BOD5 is 30 mg/L and suspended solids (RSP) is 40mg/L assessed on an annual average. Total phosphorus (PPUT) is 1 mg/L assessed on a monthly basis.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

11/23/90

002139-01-0(9)   LAFARGE CANADA INC. - BATH CEMENT PLANT   BATH   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	10.3	7.3	10.5	10.5	13.4	11.8	18.3	14.3	5.6	14.5	11.6	7.3	11.3	
MG/L AS O (BOD5)	GUIDELINE	30	30	30	30	30	30	30	30	30	30	30	30	30	0
PHOSPHOR UNF.TOT.	ACTUAL	0.22	0.03	0.19	0.18	0.08	0.08	0.03	0.13	0.09	0.08	0.05	0.06	0.102	
MG/L (PPUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE PARTIC.	ACTUAL	15.2	10.2	33	4.5	28.5	7.6	14.2	9.7	2.8	3.9	4.8	6.3	11.7	
MG/L (RSP)	GUIDELINE	40	40	40	40	40	40	40	40	40	40	40	40	40	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Luzenac Inc.
& PLANT LOCATION: (previously reported as Steetley Talc Limited)
Foleyet

IMIS NO.: 0096920004

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Mining, Milling, Smelting

SIC CODE:

RECEIVING WATERBODY: DIRECT: Crawford Creek
INDIRECT: Nat River

DESCRIPTION OF ACTIVITY: Mining and milling of talc.

EFFLUENT CHARACTERISTICS: Contains suspended solids.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): February 9, 1989

EXCEEDANCES: Yes. Suspended solids once.

REMEDIAL ACTIONS:

COMMENTS: Samples taken quarterly, sampling started in latter part of 1987. Exceedance of suspended solids limit was attributed to poor sampling technique.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

11/15/90

009692-00-0(4)   LUZENAC INC. - PENHORWOOD MINE SITE   TIMMINS   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL			3			1			5			20	7.25	
MG/L (RSP)	GUIDELINE			15			15			15			15	15	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 4, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: MacMillan Bloedel Limited
Sturgeon Falls Division
Sturgeon Falls

IMIS NO.: 0001530005

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Pulp and Paper

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT**: Sturgeon River to Lake Nipissing to French River Main Channel
INDIRECT: 124 km to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Two different processes are used on softwoods (Red and White pine) and hardwood (Maple, Poplar, Birch). Chips are thermal refined and glued to form hard-board. Chips are converted by the neutral sulphite semi-chemical process into corrugating medium.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood, pulp) and dissolved organics (BOD)

EFFLUENT TREATMENT: Primary clarifier removes suspended solids. An anaerobic secondary treatment process was started up June 1990 for removal of dissolved organics (BOD)

DISCHARGE TYPE: Continuous, seven days a week; three separate outfalls (clean water effluents, spent liquor and clarifier).

COMPANY LIMITS SET BY: **CONTROL ORDER :** Loading requirements are based on the Control Order limit for suspended solids. BOD reduction is to be at the maximum degree practicable following a two year optimization period.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: One trout bioassay conducted in 1989 indicated the mill eflluent to have acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 7.2 %. One trout bioassay conducted in 1989, indicated the Clear effluent to have been non- acutely lethal.

COMMENTS:

11/13/90

000153-00-0(5) MACMILLIAN-BLOEDEL LIMITED STURGEON FALLS REPORT DATE: 28 FEB 91
CONTROL POINT: 0700 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9981	11192	11269	10823	10739	8938	10826	11722	10810	11048	10042	9463	10571	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	38320	41570	44190	41580	37030	29190	35080	32700	33080	39200	31340	22460	35478	
KG /DAY (BOD5)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1840	2590	2320	2040	1780	1000	2160	1280	1460	2810	2080	2230	1966	
KG /DAY (RSP)	REQUIREMENT	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Malette Kraft Pulp and Power
& PLANT LOCATION: Smooth Rock Falls

IMIS NO.: 0000860502

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Kraft Pulp Mill

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT:** Mattagami R.
INDIRECT: Moose R. to James Bay

DESCRIPTION OF ACTIVITY: Softwood (Black spruce, Jack pine, Balsam fir) is converted by the bleached kraft processes into market kraft pulp.

EFFLUENT CHARACTERISTICS: Contains suspended organic compounds from pulping process. Also contains chemicals that affect the alkalinity of the receiver.

EFFLUENT TREATMENT: Raw suspended solids waste loads are reduced in the mill by recovery systems for wet bark, reject knots from unbleached pulp and bleached fibre from spills. A steam stripper removes organic compounds (some odourous) from condensates. The total mill effluent passes through a primary clarifier, a settling pond and a foam pond.

DISCHARGE TYPE: Continuous diffuser to Mattagami River.

COMPANY LIMITS SET BY: **CONTROL ORDER (EFFECTIVE DATE):** A Control Order was issued in Nov. 1989 with a daily limit for BOD of 16.5 tonnes/day and a 30 day rolling average of 9.6 tonnes/day. The maximum daily net loading for suspended solids (RSP) is 6.5 tonnes/day and the 30 day rolling average limit is 4.0 tonnes/day.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: In order to improved effluent quality the company has prepared an action plan for replacing the black liquor recovery system, the brown stock screening system, the installation of a new chlorine dioxide plant by the end of 1991. Depending on effluent quality, a secondary effluent treatment plant will be installed by the end of 1993.

Two of three trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 21.3 % and 28.3 %. The third sample was determined to have been non-acutely lethal.

03/05/91

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000086-05-0(2)    MALETTE INC., MALETTE KRAFT PULP AND POWER DIVISIO  SMOOTH ROCK FALLS                             REPORT DATE: 28 FEB 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS DATA                                                                               ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS               JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL              44942    45687    45970    46760    50120    54600    59450    58013    55500    51460    50000    47490    50833
M3 /DAY  (FTFLOW) GUIDELINE

BOD 5 DAY              ACTUAL               8900     2100     6100     6500     6400     6300     5600     6500     6800     5400     6400     7950     6246
KG /DAY (BOD5 )   REQUIREMENT            S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C                       0

RESIDUE PARTIC.        ACTUAL               1400     8000     1800     1400     7200     2700     2000     1700     1600     1500     1500     1900     2725
KG /DAY (RSP )    REQUIREMENT            S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C      S/C                       0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Mattabi Mines Ltd.
& PLANT LOCATION: Sturgeon Lake Area,
District of Kenora

IMIS NO.: 0042110106

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592, 0594

RECEIVING WATERBODY:
DIRECT: Bell River, Sturgeon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Crushed ore is milled into zinc concentrate

EFFLUENT CHARACTERISTICS: Contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Tailings decant is limed for metals precipitation, metal hydroxide precipitates are settled, clearwater recycled to mill process, decant effluent discharged.

DISCHARGE TYPE: Continuous decanting.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Performance is assessed by 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: Yes. Zinc (Two out of twelve), pH (Three out of twelve/), iron (Three out of twelve)

REMEDIAL ACTIONS: High run-off conditions in spring overloaded the treatment system. Plant operations may cease shorlty.

COMMENTS: Two trout bioassays conducted in 1989 indicated the final effluent was occasionaly acutely lethal to test fish. One result determined that the percentage effluent required to kill 50% of the test fish by the end of four days exposure was 72.3% while the other test was non-lethal.

11/06/90

004211-01-0(6) MATTABI MINES LTD. IGNACE REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10400	7800	9100	16300	22700	19000	15400	1900	2400	200	10000	10700	10500	
M3 /DAY (FTFLOW)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	0.4	0.5	0.7	5.9	2.5	1.5	0.6	0.3	0.6	0.7	0.6	0.5	1.23	
MG/L (FEUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	3
PH	ACTUAL	11.4	11.6	10.8	7.3	8.9	8.8	10.3	10.2	9.3	10.5	10.3	11	10	
(PH)	GUIDELINE														4
RESIDUE PARTIC.	ACTUAL	7	2	7	9	3	6	5	12	3	1	1	1	5	
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15	15	15	15	0
ZINC UNF.TOT.	ACTUAL	0.19	0.22	0.252	4.332	2.006	0.992	0.176	0.14	0.533	0.24	0.683	0.26	0.835	
MG/L (ZNUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: McBean Mines Ltd.
& PLANT LOCATION: Dobie
IMIS NO.: 0051730000

MOE REGION: Northeast
DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Victoria Creek to Misema River to Blanch River
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and Recovery Using Merryl-Crowe Process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, nickel, zinc, solids.

EFFLUENT TREATMENT: SO_2/air cyanide distruct system + tailings ponds.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) 1981.

EXCEEDANCES: Iron (1), phenol (2), zinc (1)

REMEDIAL ACTIONS: None.

COMMENTS: The operation has been shutdown since October 1987 and is in a care of maintenance mode. The company has been monitoring the final discharge at the Little Larder Lake outflow.

03/11/91

005173-00-0(0) MCBEAN MINE DOBIE REPORT DATE: 28 FEB 91
CONTROL POINT: 0202 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC FIL.TOT.	ACTUAL				0.011			0.011	0.011	0.011	0.011	0.019	0.02	0.013	
MG/L AS AS	GUIDELINE				0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE FREE	ACTUAL				1.9			0.01	0.01	0.01	0.004	0.01	0.01	0.279	
MG/L AS HCN	GUIDELINE				2			2	2	2	2	2	2	2	0
COPPER FIL.TOT.	ACTUAL				0.02			0.026	0.013	0.016	0.01	0.013	0.051	0.021	
MG/L AS CU	GUIDELINE				1			1	1	1	1	1	1	1	0
IRON FIL.TOT.	ACTUAL				0.792			1.92	0.176	0.165	0.096	0.35	0.31	0.544	
MG/L AS FE	GUIDELINE				1			1	1	1	1	1	1	1	1
NICKEL FIL.TOT.	ACTUAL				0.009			0.056	0.007	0.068	0.086	0.009	0.073	0.044	
MG/L AS NI	GUIDELINE				1			1	1	1	1	1	1	1	0
NH3-N FIL.REAC	ACTUAL							0			0			0	
MG/L (NNH3FR)	GUIDELINE							10			10			10	0
LEAD FIL.TOT.	ACTUAL				0.025			0.073	0.025	0.025	0.0248	0.025	0.115	0.045	
MG/L AS PB	GUIDELINE				1			1	1	1	1	1	1	1	0
PH	ACTUAL				6.5			7	6.7	7.3	7.7	7.7	8	7.3	
(PH)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL							8.3	13.3	23.9	15.2	30.8	9.6	16.9	
UG/L PHENOL	GUIDELINE							20	20	20	20	20	20	20	2
SULPHATE FIL.REAC	ACTUAL				48.6			69.2	28.9	79.4	71.4	86.7	55	62.7	
MG/L AS CR	GUIDELINE														
ZINC FIL.TOT.	ACTUAL				0.203			0.734	0.628	0.407	0.119	1.2	0.23	0.50	
MG/L AS ZN	GUIDELINE				1			1	1	1	1	1	1	1	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 56, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Minnova Inc. Winston Lake Project Schreiber

IMIS NO.: 0096100003

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 0591, 0594

RECEIVING WATERBODY: DIRECT: Whitesand River
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Sulphide ore is mined and milled into copper and zinc.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, phosphorus, ammonia, oil and grease, phenols, BOD5.

EFFLUENT TREATMENT: Mill tailings water treated with lime to effect pH control and precipitate metals in a sludge pond. Sludge pond effluent may receive acid treatment prior to polishing pond.

DISCHARGE TYPE: Continuous.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0001-87-007 issued Dec. 23, 1987.

Parameter	Effluent Concentration Limits	Parameter	Effluent Concentration Limits mg/L
Total suspended solids (RSP)	15 mg/L	Zinc (ZNUT)	0.5mg/L
Oil and Grease (SOLEXT)	15mg/L	Copper (CUUT)	0.3mg/L
BOD5	15mg/L	Nickel (NIUT)	0.5mg/L
Ammonia (expressed as N) (NNH3FR)	0.2mg/L	Arsenic (ASUT)	0.5mg/L
Phosphorus (except) when discharge <4.5 kg/day)	1mg/L	Lead (PBUT)	0.2mg/L
pH	5.5 to 10.6		

MOE OR FEDERAL GUIDELINES: Phenol objective 0.02 mg/L.

EXCEEDANCES: Yes. Oil and grease (SOLEXT) ; phophorous(PPUT). zinc (ZNUT)

REMEDIAL ACTIONS: A permanent CO_2 system for ammonia control was installed in 1989. Company reduced effluent flows in November and December to minimize zinc loading to the Whitesand River. The causes of the exceedances are being investigated by the company and MOE. Company reduced effluent flows in November and December to minimize zinc loadings to the Whitesand River. The tailings dam height is to be increased to provide longer retention time.

COMMENTS: Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/21/91

009610-00-0(3) MINNOVA INC., WINSTON LAKE MINE SCHREIBER REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1670	2270	2410	2330	3000	1880	1870	2490	2050	1430	480	70	1829	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.002	0.003	0.041	0.003	0.01	0.017	0.002	0.001	0.001	0.01	0.001	0.001	0.008	
MG/L (ASUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
BOD 5 DAY	ACTUAL	4.3	15.1	12.9	7.9	13.5		2.1	1.2	4.5	2.9	0.9	1.4	6.06	
MG/L AS O (BOD5)	REQUIREMENT	15	15	15	15	15		15	15	15	15	15	15	15	1
COPPER UNF.TOT.	ACTUAL	0.046	0.03	0.035	0.035	0.018	0.02	0.02	0.014	0.012	0.016	0.0125	0.0125	0.023	
MG/L (CUUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
NICKEL UNF.TOT.	ACTUAL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.012	0.01	0.01	0.01	0.01	0.01	
MG/L (NIUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
NH3-N FIL.REAC	ACTUAL	0.01	0	0.01	0.05	0.03	0.01	0.04	0.02	0.01	0.02	0.05	0	0.021	
MG/L (NNH3FR)	REQUIREMENT	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
LEAD UNF.TOT.	ACTUAL	0.01	0.012	0.01	0.017	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	0.01	
MG/L (PBUT)	REQUIREMENT	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
PH	ACTUAL	7.36	7.1	7.15	7.55	7.16	5.8	7.45	7.16	7.15	7.68	7.95	7.13	7.22	
(PH)	GUIDELINE														0
PHENOLS UNF-REAC	ACTUAL	0.1	0.11	0.037	0.09	0.31		0.011	0	0.021	0.03	0.03	0.02	0.069	
MG/L (PHNOL)	REQUIREMENT	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2	0.2	1
PHOSPHOR UNF.TOT.	ACTUAL	0.12	0.29	1.12	0.64	0.39	0.1	0.26	0.3	0.3	0.16	0.04	0.06	0.315	
MG/L AS P (PPUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ZINC UNF.TOT.	ACTUAL	0.154	0.175	0.177	0.09	0.266	0.37	0.37	0.168	0.49	0.224	0.725	1.102	0.359	
MG/L (ZNUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 118, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Mitsubishi Canada Inc.
& PLANT LOCATION: Midland
IMIS NO.: 0001880004

MOE REGION: Central
DISTRICT: Barrie

INDUSTRIAL SECTOR: Metal, plastic fabricating & finishing
SIIC CODE:334,3399

RECEIVING WATERBODY: DIRECT: Wye River
INDIRECT: Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Manufactures television tubes.

EFFLUENT CHARACTERISTICS: Contains trace organics and inorganics (fluorides)

EFFLUENT TREATMENT: Chemical Flocculation - Sedimentation

DISCHARGE TYPE: Continuous - treated wastewater combines with cooling waters, roof and parking lot drainage prior to discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval #4-300-002-87-876 limits fluoride discharge to 500 kg per four week period and suspended solids concentration to 20mg/L.

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Company rehabilitated Lagoon cell #1 in 1988 to provide adequate residence time for complete mixing of acidic and alkyl waste water from the plant process.

COMMENTS: Results for filtered residue (suspended solids) were in compliance in 1989. The company modified thier testing procedure for this parameter after consultation with the Ministry of the Environment in 1988.

03/04/91

000188-00-0(4) MITSUBISHI ELECTRONICS INDUSTRIES CANADA INC MIDLAND REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	933	961	911	1017	952	974	754	896	928	963	1051	1022	947	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		7	7.2	7.1	7	6.4			6.91	7.36	7.44	7.38	7.09	
(PH)	GUIDELINE														0
CHROMIUM +6	ACTUAL									0.042	0.065	0.101	0.099	0.077	
KG /DAY (CR6UR)	GUIDELINE									0.928	0.963	1.05	1.02	0.991	0
FLUORIDE UNF.TOT.	ACTUAL									6.4	6.2	6.5	6.7	6.45	
KG /DAY (FFIDUT)	REQUIREMENT									S/C	S/C	S/C	S/C		0
RESIDUE FILTERED	ACTUAL									13	9	9	11	10.5	
KG /DAY (RSF)	GUIDELINE														
RESIDUE TOTAL	ACTUAL									560	577	595	646	595	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 17, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Nestle

& PLANT LOCATION: Chesterville

IMIS NO.: 0000900001

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Food and beverage

SIC CODE: 1089

RECEIVING WATERBODY: DIRECT: South Nation River.
INDIRECT: Ottawa River.

DESCRIPTION OF ACTIVITY: Manufacture of food and beverage products.

EFFLUENT CHARACTERISTICS: Contains suspended solids (insoluble organics) and food organics.

EFFLUENT TREATMENT: Secondary treatment with 4 month aerated retention lagoon.

DISCHARGE TYPE: Continuous - except from June 20 to October 29, 1989.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Certificate of Approval for phosphorus removal equipment issued 1988 specifies PPUT (phosphorus) requirement. Requirements for BOD5, and RSP (suspended solids) are set out in original C. of A. issued for sewage works requirement.

EXCEEDANCES: Yes. Excesses of the BOD5(8), RSP(6) and PPUT(3) concentrations requirements .

REMEDIAL ACTIONS: Company hired a consultant to evaluate and optimize the operation of the treatment system. Implementation of specific recommendations initiated in 1990.

COMMENTS: Occurence reports for violations issued.

03/08/91

000090-00-0(1) NESTLE CHESTERVILLE REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1025	355	625	607	811	719				287	592	589	623	
M3 /DAY (FTFLOW)	GUIDELINE	2045	2045	2045	2045	2045	2045				2045	2045	2045	2045	0
BOD 5 DAY	ACTUAL	35	13	18	12	26	10				5.5	2.1	11	14.7	
KG /DAY (BOD5)	GUIDELINE	30.7	30.7	30.7	30.7	30.7	30.7				30.7	30.7	30.7	30.7	1
PHOSPHOR UNF.TOT.	ACTUAL	0.8	0.3	0.5	0.6	1	0.9				0.1	0.15	0.3	0.517	
KG /DAY (PPUT)	GUIDELINE	2.05	2.05	2.05	2.05	2.05	2.05				2.05	2.05	2.05	2.05	0
RESIDUE PARTIC.	ACTUAL	37	12	27	43	63	48				0	2.5	3	26.2	
KG /DAY (RSP)	GUIDELINE	30.7	30.7	30.7	30.7	30.7	30.7				30.7	30.7	30.7	30.7	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1989.

000090-00-0(1) NESTLE CHESTERVILLE REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
BOD 5 DAY	ACTUAL	33	33	30	19	30	18				18	5	18	22.7	
MG /L AS O	REQUIREMENT	15	15	15	15	15	15				15	15	15	15	8
PHOSPHOR UNF.TOT.	ACTUAL	0.8	0.9	0.8	1.1	1.2	1.3				0.4	0.3	0.3	0.8	
MG /L AS P	REQUIREMENT	1	1	1	1	1	1				1	1	1	1	3
RESIDUE PARTIC.	ACTUAL	36	35	38	62	80	53				0	4.2	4	34.7	
MG /L RSP)	REQUIREMENT	15	15	15	15	15	15				15	15	15	15	6

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 17 OUT OF 27, FOR A TOTAL COMPLIANCE RECORD OF 37% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Nitrochem Inc.
& PLANT LOCATION: Maitland

IMIS NO.: 0001710003

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 372

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Nitric acid and different grades of ammonia based fertilizer are made.

EFFLUENT CHARACTERISTICS: Contains nitrogenous wastes.

EFFLUENT TREATMENT: An evaporation-condensation process has been used since 1987 to recover nitrogen compounds for recycling into nitrogen based fertilizer solutions.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (1979) Requirement and Direction issued to former Genstar Chemical Limited set concentrations objectives for discharge to St. Lawrence .

EXCEEDANCES: There were 13 exceedances of the Order which applies to control point 0100 only. No limits are set by the present Control Order for the sewage treatment works.

REMEDIAL ACTIONS: Based on MISA Monitoring data, Requirement and Direction to be rescinded. New Control Order will be issued to reflect current situation in terms of treatment facilities and effluent quality requirement.

COMMENTS: The MISA Monitoring Regulations requirements commenced in December 1989. The data will be used to assess the need for further controls.

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/21/91

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000171-00-0(3)    NITROCHEM INC.                            MAITLAND                                                   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                          ANNUAL       TOTAL
FLOW/LOADING          PARAMETERS        JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL            935    957    954   1055    764    713    737    634    621    584    687    562      767
M3 /DAY (FTFLOW)      GUIDELINE

PH                    ACTUAL            9.7    8.4    8.9     10    9.6    9.7    9.9   10.2    9.8    9.7     10   10.1     9.67
(PH )                 GUIDELINE                                                                                                        10

KJELDAHL ORGANIC      ACTUAL            132    107    107    233     85     86    105     57     58     55     68     53     95.5
KG /DAY (NNKUR )      REQUIREMENT      46.8   47.9   47.7   52.8   38.2   35.7   36.9   31.7   31.1   29.2   34.4   28.1     38.3          12

NO2+NO3N UNF.REAC     ACTUAL              7     18      8     56      8      5      6      4      4      4     10      5     11.3
KG /DAY (NNOTUR)      REQUIREMENT      18.7   19.1   19.1   21.1   15.3   14.3   14.7   12.7   12.4   11.7   13.7   11.2     15.3           1

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
*********************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  23 OUT OF  36, FOR A TOTAL COMPLIANCE RECORD OF  36% IN 1989.


000171-00-0(3)    NITROCHEM INC.                            MAITLAND                                                   REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989                                                                                          ANNUAL       TOTAL
FLOW/LOADING          PARAMETERS        JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL             16     20   14.6   13.2   15.4   17.1   19.1     19   20.4     14   16.6     16     16.8
M3 /DAY (FTFLOW)      GUIDELINE

KJELDAHL ORGANIC      ACTUAL            3.6    3.6    5.7   10.6   10.7     13      6    5.1    5.2      5    5.8      5     6.61
KG /DAY (NNKUR )      REQUIREMENT

NO2+NO3N UNF.REAC     ACTUAL            2.2    2.2    3.4    8.1    7.7    8.2      6    4.6    3.9    3.9    4.8      5        5
KG /DAY (NNOTUR)      REQUIREMENT

PO4 FIL.REAC          ACTUAL           0.06   0.05   0.05   0.05   0.05   0.05   0.04   0.05   0.05   0.04   0.05   0.05    0.049
KG /DAY (PPO4FR)      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
*********************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF   0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Noranda Forest Inc.
(previously reported as Fraser Inc.)
& PLANT LOCATION: Thorold

IMIS NO.: 0000940007

DISTRICT: Welland

MOE REGION: West Central

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Fine paper is made from pulp and from deinked ledger paper.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge plant on deinking effluent removes organics attributed by ink by biological degradation. Clarifier on total mill effluent removes solids. Some clarified effluent is recycled to the mill.

DISCHARGE TYPE: continuous through an outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (1978): BOD5 limit concentration of 150 ppm.

MOE OR FEDERAL GUIDELINES: Target loads set by MOE Pulp and Paper Committee consistent with Best Practicable Technology. Suspended solids loading established by Best Available Technology (BAT) which is consistent with secondary treatment.

EXCEEDANCES: No exceedance of C. of A requirements for BOD5. Company exceeded nine of twelve months total suspended solids Pulp and Paper Committee guideline limits.

REMEDIAL ACTIONS: Company completed a program to reduce overflows and conserve water in 1989. A new certificate of Approval for an effluent dechlorination system was issued in December 1990 with installation completed in January 1991. The new Certificate of Approval has loading requirements for both BOD_5 and suspended solids, compliance expected in 1991.

COMMENTS:
Two trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 28.3 % and 47.2 %

03/08/91

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000094-00-0(7)    NORANDA FOREST INC., RECYCLED PAPERS                     THOROLD                                     REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                           ANNUAL       TOTAL
FLOW/LOADING       PARAMETERS            JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------
FLOW                 ACTUAL            21483  24477  22259  23679  22547  23663  22005  21849  20612  19444  21965  21714    22141
M3 /DAY (FTFLOW)   GUIDELINE

BOD 5 DAY            ACTUAL             2740   3065   2485   3389   2477   2584   2703   3037   2806   2722   2816   2788     2801
KG /DAY (BOD5 )    REQUIREMENT          3222   3672   3339   3552   3382   3549   3301   3277   3092   2917   3295   3257     3321           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
**********************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.


000094-00-0(7)    NORANDA FOREST INC., RECYCLED PAPERS                     THOROLD                                     REPORT DATE: 9 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA                                                                              ANNUAL           TOT
FLOW/LOADING       PARAMETERS            JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.      ACTUAL              902   1150   1625   1160    812    923    902    896   1031   1206   1274   1086     1081
KG /DAY (RSP )     GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
**********************************************************************************************************************************************
GROSS DATA PROVIDED FOR COMPARISON PUROSES


000094-00-0(7)    NORANDA FOREST INC., RECYCLED PAPERS                     THOROLD                                     REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989                                                                                           ANNUAL       TOTAL
FLOW/LOADING       PARAMETERS            JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC  AVERAGE EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE FILTERED     ACTUAL             7425  10582  11276   9159   8836  10640  10086   9824   9084  10307   8116   9252     9549
KG /DAY (RSF )     GUIDELINE

RESIDUE PARTIC.      ACTUAL              763    981   1341    744    406    523    461    501    501    806    660    691      698
KG /DAY (RSP )     GUIDELINE             371    529    564    458    442    532    504    492    454    515    406    463      478           9

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
**********************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 25% IN 1989.
```

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Noranda Inc., Lyon Lake Division Sturgeon Lake Area, District of Thunder Bay	IMIS NO.: 0042110114
MOE REGION:	Northwest	DISTRICT: Kenora
INDUSTRIAL SECTOR:	Metal Mining , Smelting, Refining	SIC CODE: 0592, 0594
RECEIVING WATERBODY:	DIRECT: Lyon Lake INDIRECT: English River	

DESCRIPTION OF ACTIVITY: Ore is removed from underground and open pit for zinc recovery at Mattabi Mines Ltd.

EFFLUENT CHARACTERISTICS: Treated minewater contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Lime precipitation of dissolved metals, settling of metal hydroxide precipitates.

DISCHARGE TYPE: continuous decanting

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Performance assessed by 'Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: Yes, pH (Six out of twelve)

REMEDIAL ACTIONS: High pH's are necessary to precipitate soluble zinc for removal from effluent. Plant operations may cease shortly.

COMMENTS: Two trout bioassays conducted on the final effluent in 1989 indicated acute toxicity. Statistically the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 47.2% to 29.4%.

11/06/90

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004211-01-1(4)    NORANDA INC                                          IGNACE
CONTROL POINT: 0100 DATA FOR 1989                                                                                                         REPORT DATE: 28 FEB 91
FLOW/CONCENTRATION PARAMETERS             JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC   ANNUAL    TOTAL
                                                                                                                                                 AVERAGE  EXCEEDANCES
----------------------------------------------------------------------------------------------------------------------------------------------------------------------
IRON UNF.TOT.       ACTUAL                0.1      0.1      0.1      0.3      0.1      0.2      0.1      0.2     0.04      0.1     0.03     0.01      0.1
MG/L (FEUT )      GUIDELINE                 1        1        1        1        1        1        1        1        1        1        1        1        1        0

PH                  ACTUAL                9.9     10.2     10.8      8.7      9.1      7.7        9     10.7     10.7     10.7     11.6     11.4       10
(PH )             GUIDELINE                                                                                                                                  6

RESIDUE PARTIC.     ACTUAL                  1        1        5        1        4        1        3        7        5        1        3        1        3
MG/L (RSP )       GUIDELINE                15       15       15       15       15       15       15       15       15       15       15       15       15        0

ZINC UNF.TOT.       ACTUAL                0.2      0.2      0.1      0.8      0.1      0.7      0.5      0.1      0.1      0.2      0.1      0.2      0.3
MG/L (ZNUT )      GUIDELINE                 1        1        1        1        1        1        1        1        1        1        1        1        1        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  10.6
**********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   6 OUT OF  48, FOR A TOTAL COMPLIANCE RECORD OF  88% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Noranda Minerals Inc. GECO Div.
& PLANT LOCATION: Manitouwadge

IMIS NO.: 0001800002

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 0592

RECEIVING WATERBODY: DIRECT: Mose Lake
INDIRECT: 154 km to Lake Superior

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT CHARACTERISTICS: Contains suspended solids, heavy metals, and ammonia.

EFFLUENT TREATMENT: pH adjustment and clarification of metal precipitates from tailing area and seepage.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Yes. Ammonia

REMEDIAL ACTIONS: Amendments to the C of A in 1989 required studies on ways to decrease ammonia levels.

COMMENTS: An ammonia reduction program was implemented in 1989 . The problem at this dicharger pertains to the release of ammonia compounds already deposited. The control measures will take considerable time to be effective.

Five trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure ranged from 5.0 % to 18.6 %.

03/21/91

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000180-00-0(2)    NORANDA MINERALS INC. GECO DIVISION         MANITOUWADGE                                                   REPORT DATE: 7 MAR 91
CONTROL POINT: 0100 DATA FOR 1989                                                                                                   ANNUAL       TOTAL
FLOW/CONCENTRATION PARAMETERS          JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
-------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                 ACTUAL       3490    3780    3540    3540    3900    3450    3190    3710    4140    3830    3220    3280     3589
M3 /DAY (FTFLOW)   GUIDELINE

COPPER UNF.TOT.      ACTUAL       0.46    0.68    0.53    0.15     0.1    0.19    0.33    0.19    0.31    0.27   0.196   0.115    0.293
MG/L (CUUT )       GUIDELINE         1       1       1       1       1       1       1       1       1       1       1       1        1           0

IRON UNF.TOT.        ACTUAL       0.52    0.72    0.51    0.46    0.63    0.64    0.68    0.83   0.492   0.462   0.534   0.375    0.571
MG/L (FEUT )       GUIDELINE         1       1       1       1       1       1       1       1       1       1       1       1        1           0

NH3-N TOTAL          ACTUAL         55      48      55      47      49      59      62      63      64      65      65      61       58
MG/L AS N (NNHTFR) GUIDELINE        10      10      10      10      10      10      10      10      10      10      10      10       10          12

PH                   ACTUAL          9       9     9.1       9     8.7       9       9       9     9.1       9     9.1     8.8     8.98
(PH )              GUIDELINE                                                                                                                        0

RESIDUE PARTIC.      ACTUAL          5     7.5     5.2     3.3     3.2     4.8     6.7     6.3     6.5     5.8     3.6     3.8     5.16
MG/L (RSP )        GUIDELINE        15      15      15      15      15      15      15      15      15      15      15      15       15           0

ZINC UNF.TOT.        ACTUAL      0.065   0.125    0.11   0.095   0.088   0.157   0.386   0.173   0.087   0.075   0.134   0.075    0.131
MG/L (ZNUT )       GUIDELINE         1       1       1       1       1       1       1       1       1       1       1       1        1           0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  10.6
*******************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS  12 OUT OF  72, FOR A TOTAL COMPLIANCE RECORD OF  83% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Northern Wood Preservers Inc.
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0001820000

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Wood Preserving

SIC CODE: 251, 2591

RECEIVING WATERBODY: DIRECT: Thunder Bay Harbour
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Timber, ties and utility poles are treated with creosote or pentachlorophenol preservative.

EFFLUENT CHARACTERISTICS: Effluent contains low levels of phenols, pentachlorophenol and traces of dioxin.

EFFLUENT TREATMENT: Secondary activated sludge.

DISCHARGE TYPE: Continuous subsurf ace

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): A Control Order was issued in Nov. 1987 to control suspended solids, phenol and pentachlorophenol. Suspended solids (RSP) limits are- 25 mg/L single day and 15 mg/L on 30 working day average. Phenol (PHNOL) limits - 30 ug/L single day and 15 ug/L on 30 working day average. Pentachlorophenol limits - 4000 ng/L single day and 2000 ng/L on 60 working day average.

EXCEEDANCES: Yes, Phenol non- compliance due to improper analytical methods employed by company.

REMEDIAL ACTIONS: The company has changed analytical technique for Phenol determination.

COMMENTS: Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

11/05/90

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000182-00-0(0)    NORTHERN WOOD PRESERVERS                            THUNDER BAY                                                     REPORT DATE: 18 MAR 81
CONTROL POINT: 0100 DATA FOR 1980                                                                                                             ANNUAL     TOTAL
FLOW/CONCENTRATION PARAMETERS          JAN       FEB       MAR       APR       MAY       JUN       JUL       AUG       SEP       OCT       NOV       DEC    AVERAGE  EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
PHENOLS UNF-REAC     ACTUAL                               40.71       120      45.8      40.7       120        52      33.5      44.4      38.1      40.4     58.9
UG/L (PHNOL )     REQUIREMENT                                15        15        15        15        15        15        15        15        15        15       15        10

RESIDUE PARTIC.      ACTUAL                                6.16      6.15      7.51      6.35      8.08      8.07      5.93      7.33       5.1      7.28      6.8
MG/L (RSP )       REQUIREMENT                                15        15        15        15        15        15        15        15        15        15       15         0

PENTACHLOROPHENOL    ACTUAL                               22.92      30.6     738.5    245.75   1715.75    182.67     100.4     65.75        85     10.88    318.5
MG/L (X3PCPH)     REQUIREMENT                               S/C       S/C       S/C       S/C       S/C       S/C       S/C       S/C       S/C       S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
********************************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1980.
```

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Norton Company
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001650001

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: There are 4 discharges to the Welland River; results are a composite of all discharges.

EFFLUENT TREATMENT: Oil water separation, pH adjustment and solids precipitation on product process waste water are carried out.

DISCHARGE TYPE: continuous through a submerged outfall

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: In Compliance .

REMEDIAL ACTIONS: None.

COMMENTS: Compliance assessed against total plant outfall.

Toxicity results obtained under the MISA program are:

The data for three trout bioassays submitted to MOE under the MISA Monitoring regulation in 1989, indicated that the Sewer B, C and D effluents to have been non-acutely lethal to test fish.

03/08/91

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 14 MAR 91
SUMMARY FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.
INCLUDES CONTROL POINTS: 0200 0300 0400
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9583	9583	9583	9583	9583	9583	6935	8243	9225	8898	7262	6804	8789	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.8	7.1	7.2	7.7	7.93	7.83	7.6	7.73	7.97	8	8.06		
(PH)	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	3.401	3.401	61.476	0*	0*	62.522	0*	32.046	0*	5.886	7.259	41.500	18.1	
KG /DAY (RSP)	GUIDELINE	145.2	145.2	145.2	145.2	145.2	145.2	104.0	123.7	138.4	133.5	108.9	102.1	131.8	0
SOLVENT EXTRACT. *	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SOLEXT)	GUIDELINE	145.2	145.2	145.2	145.2	145.2	145.2	104	123.6	138.3	133.4	108.9	102.1	131.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36 FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

* BELOW DETECTION LIMIT

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 9 MAR 91

CONTROL POINT: 0200 DATA FOR 1989 - NET DATA - SEWER B

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3402	3402	3402	3402	3402	3402	854	1963	1963	1963	1963	1132	2504	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	8	7.3	7.1	7.7	8.1	8	7.7	7.9	8	8	8.01	7.77	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	3.4008	0	13.6032	0	0	44.2104	0	0	0	5.886	1.962	0	5.76	
KG /DAY (RSP)	GUIDELINE	51	51	51	51	51	51	9.81	29.4	29.4	29.4	29.4	17	37.6	0
SOLVENT EXTRACT. *	ACTUAL	0	0*	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SOLEXT)	GUIDELINE	51	51	51	51	51	51	9.81	29.4	29.4	29.4	29.4	17	37.5	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

* BELOW DETECTION LIMIT

000165-00-0(1) NORTON CANADA INC. (CHIPPAWA PLANT) NIAGARA FALLS REPORT DATE: 9 MAR 91

CONTROL POINT: 0300 DATA FOR 1989 - NET DATA - SEWER C

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701	1897.3	1717	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.6	6.9	7.2	7.6	7.9	7.6	7.4	7.6	7.9	8	8.14	7.6	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	3.4	20.4	0	0	0	0	0	0	0	1.7	0	2.13	
KG /DAY (RSP)	GUIDELINE	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	28.5	25.8	0
SOLVENT EXTRACT. *	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SOLEXT)	GUIDELINE	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	28.5	25.8	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

* BELOW DETECTION LIMIT

000165-00-0(1)   NORTON CANADA INC. (CHIPPAWA PLANT)   NIAGARA FALLS   REPORT DATE: 9 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - NET DATA - SEWER D

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4580	4580	4580	4580	4580	4580	4580	4580	5561	5254	3598	3775	4567	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.8	7.3	7.5	7.8	7.8	7.9	7.7	7.7	8	8	8.02	7.76	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	0	27.5	0.0	0.0	18.3	0.0	32.0	0.0	0.0	3.6	41.5	10.2	
KG /DAY (RSP)	GUIDELINE	68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	83.4	78.5	54	56.6	68.5	0
SOLVENT EXTRACT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SOLEXT)	GUIDELINE	68.7	68.7	68.7	68.7	68.7	68.7	68.7	68.7	83.4	78.5	54	56.6	68.5	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

* BELOW DETECTION LIMIT

000165-00-0(1)   NORTON CANADA INC. (CHIPPAWA PLANT)   NIAGARA FALLS   REPORT DATE: 19 MAR 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.
INCLUDES CONTROL POINTS: 0200 0300 0400
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	9683	9683	9683	9683	9683	9683	6935	8263	9225	8898	7262	6804	8789	
PH (PH)	ACTUAL GUIDELINE	7.5	7.8	7.2	7.3	7.7	7.9	7.8	7.6	7.7	8.0	8.0	8.1	7.7	
RESIDUE PARTIC. MG /L (RSP)	ACTUAL GUIDELINE	35	12	37	7	7	29	18	14	8	6	13	90	23	
SOLVENT EXTRACT. MG /L (SOLEXT)	* ACTUAL GUIDELINE	6	6	6	6	6	6	6	6	6	6	6	6	6	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

* BELOW DETECTION LIMIT

000165-00-0(1)   NORTON CANADA INC. (CHIPPAWA PLANT)   NIAGARA FALLS   REPORT DATE: 19 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA - SEWER B

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3402	3402	3402	3402	3402	3402	654	1963	1963	1963	1963	1132	2504	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	8	7.3	7.1	7.7	8.1	8	7.7	7.9	8	8	8.01	7.77	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	17	4	9	1	1	18	4	1	2	4	4	28	7.8	
MG /L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	* ACTUAL	2	2	2	2	2	2	2	2	2	2	2	2	2	
MG /L (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

* BELOW DETECTION LIMIT

000165-00-0(1)   NORTON CANADA INC. (CHIPPAWA PLANT)   NIAGARA FALLS   REPORT DATE: 19 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS DATA - SEWER C

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701	1897.3	1717	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.6	6.9	7.2	7.6	7.9	7.6	7.4	7.6	7.9	8	8.14	7.6	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	11	7	17	3	2	2	10	1	5	1	4	22	7.1	
MG /L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	* ACTUAL	2	2	2	2	2	2	2	2	2	2	2	2	2	
MG /L (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

* BELOW DETECTION LIMIT

000165-OG-O(1)   NORTON CANADA INC. (CHIPPAWA PLANT)   NIAGARA FALLS   REPORT DATE: 19 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS DATA - SEWER D

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4580	4580	4580	4580	4580	4580	4580	4580	5561	5234	3598	3775	4567	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.8	7.3	7.5	7.8	7.8	7.9	7.7	7.7	8	8	8.02	7.76	
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	7	1	11	3	4	9	4	12	1	1	5	40	8.2	
MG /L (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	2	2	2	2	2	2	2	2	2	2	2	2	2	
MG /L (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

* BELOW DETECTION LIMIT

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Nova Petrochemicals Inc. (Corunna)
(previously reported as Petrosar).
& PLANT LOCATION: Corunna

IMIS NO.: 0000480004

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Primary function to provide feedstock for Dupont, Polysar and NOVACOR. Also propane and other fuels.

EFFLUENT CHARACTERISTICS: Contains insoluble and soluble compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT: Tertiary treatment diffused outfall.

DISCHARGE TYPE: Periodic through a submerged diffuser

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None

COMMENTS: The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings. MISA GROSS data should not be compared to IMIS NETdata reported in previous years.

Toxicity results obtained under the MISA program are:

The data for thirteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish.

02/11/91

000048-00-0(4)   NOVA PETROCHEMICALS LTD.   SARNIA   REPORT DATE: 8 MAY 91

CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5563	5215	6429	6866	5205	5220	6674	6073	5376	5445	6042	5658	5814	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.8	7.9	7.8	7.9	7.8	8.1	7.8	7.9	8.0	7.8	8.1	7.6	7.9	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	2.6	1.6	4.7	3.0	2.6	2.5	3.2	4.6	2.8	3.8	22.5		4.9	
KG /DAY (NNHTFR)	GUIDELINE	55.6	52.2	64.3	68.7	52.1	52.2	65.7	60.7	53.8	54.5	60.4		58.3	0
PHENOLS UNF-REAC	ACTUAL	0.03	0.04	0.1	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.04		0.04	
KG /DAY (PHNOL)	GUIDELINE	0.11	0.10	0.13	0.14	0.10	0.10	0.13	0.12	0.11	0.11	0.12		0.12	0
RESIDUE PARTIC.	ACTUAL	66	80	153.1	122.31	97	121.9	130.97	127.04	77.22	58.3	73.1		100.63	
KG /DAY (RSP)	GUIDELINE														
SULPHIDE FIL.REAC	ACTUAL	1.3	1.72	2.28	2.16	1.35	0.77	1.45	0.99	0.78	0.58	0.69		1.28	
KG /DAY (SSIDUR)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	39.4	9.8	8.9	9.1	19.6	7.7	8.5	6.7	5.8	8.5	0.1		11.3	
KG /DAY (SOLEXT)	GUIDELINE	83.4	78.2	96.4	103.0	78.1	78.3	100.1	91.1	80.6	81.7	90.6		87.4	0
CARBON TOTAL	ACTUAL	102	113	132.3	117	121	104.8	119	137	120	77.4	90.8		102.87	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

000048-00-0(4)   NOVA PETROCHEMICALS LTD.   SARNIA   REPORT DATE: 13 MAR 91

CONTROL POINT: 0200 DATA FOR 1989 - NET LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	5637	5318	6137	6955	5384	6182	6637	6137	5091	5455	5603	4864		
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.7													
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	4	4	5	6	5	4	6	5	3	4	13	18		
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.02	0.023	0.04	0.02	0.03	0.03	0.03	0.02	0.03	0.01	0.03	0.04		
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	23	29	46	32	18	30	28	33	44	9	11	14		
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0	0	3	0	1	2	2	0	3	1	0	3		
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	ACTUAL	26	32	15	18	17	26	26	19	135	20	12	53		
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Nova Petrochemicals Inc.
(previously reported as Polysar Limited)
& PLANT LOCATION: Sarnia

IMIS NO.: 0000030007

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals Manufacturing

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: Cole Drain, St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock from refineries in the Sarnia area are converted into several grades of synthetic rubber and petrochemicals such as styrene. The company also treats process effluent from 'Akzo Chemicals' and 'Basf Canada Inc.'

EFFLUENT CHARACTERISTICS: Contains a variety of organics including chlorinated compounds.

EFFLUENT TREATMENT: Secondary treatment (ie biotreatment, ozone treatment).

DISCHARGE TYPE: continuous through five major outfalls

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None.

REMEDIAL ACTIONS: None.

COMMENTS: The reported increase in exceedances does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings. Reported values for January to September are NET data; October to December MISA 'GROSS' data. MISA 'GROSS' data should not be compared to data reported in previous years.

MISA Toxicity Results.

Twenty trout bioassays in 1989, indicated that all combined effluent discharges and once through cooling water effluents to have been non-acutely lethal to test fish.

03/19/91

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000003-00-0(7)    NOVA PETROCHEMICALS INC.                          SARNIA                                                  REPORT DATE: 23 APR 91
S U M M A R Y  FOR  EMIS. TYPE: 16   FINAL DISCHARGE               DISCHARGED INTO: 02/003/       LAKE ERIE
                    INCLUDES CONTROL POINTS:  0200 0400 0500 0600
                    DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER; GROSS DATA OCTOBER TO DECEMBER                                       ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS        JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP     OCT #    NOV #    DEC # AVERAGE EXCEEDANCES
------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL        334990   329510   314510   315090   329390   361930   372940   359670   358330   384305   436399   391872   357411
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL           7.7      7.7      7.8      7.5      7.6      7.6      7.6      7.7      7.8      8.5      8.3      8.2      7.8
(PH )               GUIDELINE

NH3-N TOTAL           ACTUAL           6.6     26.6     0.18     3.34     23.1     3.11     8.50     2.46     1.94                                 8.4
KG /DAY (NNHTFR)    GUIDELINE         3350   3295.1   3145.1   3150.9   3293.9   3619.3   3729.4   3596.7   3583.3                              3418.2         0

PHENOLS UNF-REAC      ACTUAL          0.28     0.46     0.29     0.10     0.18     0.34     0.19     0.17     1.30     1.45     0.95     1.23
KG /DAY (PHNOL )    GUIDELINE         6.70     6.58     6.29     6.30     6.59     7.24     7.46     7.19     7.17     7.69     8.73     7.84                   0

RESIDUE PARTIC.       ACTUAL          40.2      441      286     93.0     39.4      139      112      240      273     1500     1090     1793
KG /DAY (RSP )      GUIDELINE         5025     4943     4718     4726     4941     5429     5594     5395     5375                                                0

SOLVENT EXTRACT.      ACTUAL            0*     12.9     4.65     0.63     5.43       0*     2.71     3.34     2.15      956      436      410
KG /DAY (SOLEXT)    GUIDELINE         5025     4943     4718     4726     4941     5429     5594     5395     5375     5765     6546     5870                   0

CARBON TOTAL          ACTUAL           980      900      685      803      886      662      846      536      662      162                 7
KG /DAY (TOC )      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS -,      # - MISA DATA, EXCEPTIONS NOTED BELOW
************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 41, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

SUMMARY PAGE CONTAINS ONLY MISA DATA FOR OCT TO DEC FOR CONTROL POINTS 0200, 0400, 0500
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000003-00-0(7)   NOVA PETROCHEMICALS INC.   SARNIA   REPORT DATE: 8 MAY 91
CONTROL POINT: 0200 DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER, GROSS DATA OCTOBER TO DECEMBER - STEREO 72 INCH SEWER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	25800	24700	24000	23800	24700	24400	25300	28000	27500	82256	77220	70214	38158	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0*	0*	0*	0*	0*	0.725	0*	0*	0*				0.060	
KG /DAY (NNHTFR)	GUIDELINE	258	247	240	238	247	244	253	280	275				254	0
PHENOLS UNF-REAC	ACTUAL	0.003	0.259	0*	0*	0*	0.01	0*	0.013	0.048	0.416	0.327	0.216		
KG /DAY (PHNOL)	GUIDELINE	0.516	0.494	0.48	0.476	0.494	0.488	0.506	0.56	0.55	1.65	1.54	1.40		0
RESIDUE PARTIC.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	341	395	442		
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	79	74	68		
KG /DAY (SOLEXT)	GUIDELINE	387	371	360	357	371	366	380	420	413	1234	1158	1053		0
CARBON TOTAL	ACTUAL	10.8	20.0	14.9	7.17	14.8	14.5	20.6	13.4	27.4	40.4		6.8		
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -,   # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
NNHTFR IS NOT MONITORED UNDER MISA MONITORING REGULATION
REPORTED VALUES OCT TO DEC FOR PHNOL, DEC FOR TOC ARE BASED ON ONE SAMPLE RESULT

000003-00-0(7)   NOVA PETROCHEMICALS INC.   SARNIA   REPORT DATE: 8 MAY 91
CONTROL POINT: 0400 DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER, GROSS DATA OCTOBER TO DECEMBER - 66 INCH SEWER OUTFALL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	197000	192000	177000	178000	191000	223000	233000	218000	216000	182134	176467	143119	193883	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*				0	
KG /DAY (NNHTFR)	GUIDELINE	1970	1920	1770	1780	1910	2230	2330	2180	2160				2028	0
PHENOLS UNF-REAC	ACTUAL	0*	0*	0.157	0*	0*	0.1	0*	0*	0.554		0.560	0.503		
KG /DAY (PHNOL)	GUIDELINE	3.94	3.84	3.54	3.56	3.82	4.46	4.66	4.36	4.32		3.53	2.86		0
RESIDUE PARTIC.	ACTUAL	0*	0*	55	0*	5	0*	0*	0*	0*	730	732	603		
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	176	187	161		
KG /DAY (SOLEXT)	GUIDELINE	2955	2880	2655	2670	2865	3345	3495	3270	3240	2732	2647	2147		0
CARBON TOTAL	ACTUAL	145	206	111	125	149	94	225	155	166	94.4				
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -,   # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 32, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
NNHTFR IS NOT MONITORED UNDER MISA MONITORING REGULATION
REPORTED VALUES OCT TO DEC FOR PHNOL ARE BASED ON ONE SAMPLE RESULT

000003-30-0(7)   NOVA PETROCHEMICALS INC.   SARNIA   REPORT DATE: 8 MAY 91

CONTROL POINT: 0500 DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER, GROSS DATA OCTOBER TO DECEMBER - 54 INCH SEWER OUTFALL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	100000	100000	100000	100000	100000	100000	100000	100000	100000	119013	182712	178539	115097	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.1	8.2	8	8	8.1	8.2	8.2	8.2	8.3	8.5	8.3	8.2	8.2	
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*				0*	
KG /DAY (NNHTFR)	GUIDELINE	1000	1000	1000	1000	1000	1000	1000	1000	1000				1000	0
PHENOLS UNF-REAC	ACTUAL	0.11	0.04	0*	0*	0.01	0.00	0*	0*	0.29	1.031	0.053	0.515		
KG /DAY (PHNOL)	GUIDELINE	2	2	2	2	2	2	2	2	2	2.40	3.65	3.57		0
RESIDUE PARTIC.	ACTUAL	0*	200	80	0*	0*	0*	0*	0*	0*	517	763	748		
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0*	0*	0*	0*	0*	0*	0*	0*	0*	701	176	131		
KG /DAY (SOLEXT)	GUIDELINE	1500	1500	1500	1500	1500	1500	1500	1500	1500	1799	2742	2678		0
CARBON TOTAL	ACTUAL	45.2	78.6	77.4	80	96.7	73.3	128	110	66.7	26.96				
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 33, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

NNHTFR IS NOT MONITORED UNDER MISA MONITORING REGULATION

REPORTED VALUES OCT TO DEC FOR PHNOL ARE BASED ON ONE SAMPLE RESULT

000003-00-0(7)   NOVA PETROCHEMICALS INC.   SARNIA   REPORT DATE: 8 MAY 91
CONTROL POINT: 0600 DATA FOR 1989 - NET DATA JANUARY TO SEPTEMBER, GROSS DATA OCTOBER TO DECEMBER - BIOX EFFLUENT

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	12190	12810	13510	13290	13690	14530	14640	13670	14830	13770	12190	11400	13377	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.3	7.2	7.1	6.9	7	7	7.1	7.2	7.2	7.1	7.3	7	7.12	
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	6.6	26.6	0.10	3.34	23.1	2.30	0.50	2.46	1.94	50.0	19	0.7	12.07	
KG /DAY (NNHTFR)	GUIDELINE	122	120	135	133	137	145	146	137	148	130	122	114	134	0
PHENOLS UNF-REAC	ACTUAL	0.166	0.161	0.120	0.097	0.160	0.233	0.19	0.155	0.413	0.266	0.195	0.166	0.19	
KG /DAY (PHNOL)	GUIDELINE	0.244	0.256	0.270	0.266	0.274	0.291	0.293	0.273	0.297	0.275	0.244	0.228	0.268	1
RESIDUE PARTIC.	ACTUAL	40.2	232	151	93	34	139	112	240	273	426	254	222	185	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0*	12.9	4.65	0.63	5.43	0*	2.71	3.34	2.15	4.95	2.8	0.6	3.35	
KG /DAY (SOLEXT)	GUIDELINE	183	192	203	199	205	218	220	205	222	207	183	171	201	0
CARBON TOTAL	ACTUAL	700	587	402	611	636	400	471	257	402	450	255	437	480	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -,   # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION

000003-00-0(7)   NOVA PETROCHEMICALS INC.   SARNIA   REPORT DATE: 30 JAN 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE   DISCHARGED INTO: 02/003/   LAKE ERIE
INCLUDES CONTROL POINTS: 0200 0400 0500 0600
DATA FOR 1989 - GROSS DATA

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	98.45	108.2	70.8	82.5	106	94	101	92.9	91.4				93.92	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	1.02	1.28	0.93	0.89	1	1.27	1.13	1.95	1.82				1.25	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1806	1732	938	1259	1677	1073	1197	1233	1458				1375	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT	ACTUAL	503	506	476	474	499	544	562	542	554				518	
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	A TUAL	2999	2870	2674	3120	3248	3137	3451	3237	2894				3070	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

THIS SHEET PROVIDED FOR COMPARISON PURPOSES ONLY

000003-00-0(7) NOVA PETROCHEMICALS INC. SARNIA
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS - STEREO 72 INCH SEWER
REPORT DATE: 11 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	6.45	6.2	6	6	6	6.7	6.3	7	6.8				6.38	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.07	0.32	0.06	0.06	0.06	0.07	0.07	0.09	0.12				0.10	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	108	96.3	40.8	64.3	96.8	56	81	81.2	129				84	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT	ACTUAL	39	37	36	35.7	36.3	36.6	38	42	25				36	
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	ACTUAL	155	172.9	168	190.4	194	195	202	224	193				188	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****
THIS SHEET PROVIDED FOR COMPARISON PURPOSES ONLY

000003-00-0(7) NOVA PETROCHEMICALS INC. SARNIA
CONTROL POINT: 0400 DATA FOR 1989 - GROSS LOADINGS - 66 INCH SEWER OUTFALL
REPORT DATE: 11 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	49	48	44	44.5	48	56	58	55	54				50.72	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.49	0.48	0.46	0.45	0.48	0.67	0.58	1.42	1.2				0.69	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	1005	652.8	425	605	1088	580	699	567	496				680	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT	ACTUAL	296	288	266	267	287	335	349	327	326				304	
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	ACTUAL	1379	1344	1239	1424	1528	1561	1866	1744	1512				1511	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****
THIS SHEET PROVIDED FOR COMPARISON PURPOSES ONLY

000003-00-0(7) NOVA PETROCHEMICALS INC. SARNIA REPORT DATE: 11 FEB 91
CONTROL POINT: 0500 DATA FOR 1989 - GROSS LOADINGS - 54 INCH SEWER OUTFALL

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	25	25	25	25	25	25	25	25	25				25.00	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.26	0.29	0.25	0.25	0.26	0.26	0.25	0.25	0.05				0.24	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	570	710	290	440	380	250	250	290	460				404	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT	ACTUAL	150	150	150	150	150	150	150	150	180				153	
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	ACTUAL	600	700	700	800	800	800	800	900	700				756	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****

THIS SHEET PROVIDED FOR COMPARISON PURPOSES ONLY

000003-00-0(7) NOVA PETROCHEMICALS INC. SARNIA REPORT DATE: 11 FEB 91
CONTROL POINT: 0600 DATA FOR 1989 - GROSS LOADINGS - BIOX EFFLUENT

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
NH3-N TOTAL	ACTUAL	10	29	3.8	7	27	6.3	11.7	5.9	5.6				11.81	
KG /DAY (NNHTFR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.2	0.19	0.16	0.13	0.2	0.27	0.23	0.19	0.45				0.22	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	123	273	182	150	112.2	187	167	295	375				207	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT	ACTUAL	18	30.7	24	21.3	26	22	24.9	23.2	25				24	
KG /DAY (SOLEXT)	GUIDELINE														
CARBON TOTAL	ACTUAL	865	653	567	704	726	581	585	369	489				615	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****

THIS SHEET PROVIDED FOR COMPARISON PURPOSES ONLY

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: NOVACOR Ltd.
& PLANT LOCATION: Corunna

IMIS NO.: 0000380105

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 3731

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Ethylene from neighbouring petroleum refineries is converted into polyethylene

EFFLUENT CHARACTERISTICS: Contains organic compounds at trace levels

EFFLUENT TREATMENT: Settling.

DISCHARGE TYPE: Discharge through an extended outfall

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Two monthly exceedance of suspended solids (RSP); in compliance with annual objective.

REMEDIAL ACTIONS: New control equipment reduced suspended solids in the effluent resulting in annual compliance. The changes were not adequate for monthly compliance. A partial liner in the effluent pond was installed in 1990 to prevent erosion thereby further reducing suspended solids and bringing the company into compliance.

COMMENTS:

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/20/91

000038-01-0(5) NOVACOR CHEMICALS LTD. SARNIA REPORT DATE: 14 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	1471	1548	1435	1523	1516	1540	1500	1569	1473	1568	1528	1507	1515	
	GUIDELINE														
PH (PH)	ACTUAL	7.4	7.6	7.6	7.6	7.3	8.3	8.3	8.2	8.3	8.2	8.2	8.1	7.9	0
	GUIDELINE														
K'DAHL N TOTAL KG /DAY (NNTKUT)	ACTUAL	1.22	0.74	1.72	1.15	0.64	1.86	1.31	2.44	2.29	1.52	1.99	2.19	1.59	
	GUIDELINE														
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	ACTUAL	0.48	0.39	0.36	0.39	0.39	0.28	0.24	0.66	0.55	0.59	1.25	0.39	0.50	0
	GUIDELINE	1.47	1.55	1.44	1.52	1.52	1.54	1.5	1.57	1.47	1.57	1.52	1.50	1.51	
RESIDUE FILTERED KG /DAY (RSF)	ACTUAL	319.8	353	303.8	461.4	278	322.9	304.1	319.8	323.8	359.9	441	531	360	
	GUIDELINE														
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	22.1	22.9	52	22.7	26.1	22.7	12.1	19.7	13.6	14.46	17.93	13.8	21.67	2
	GUIDELINE	22.1	23.2	21.5	22.8	22.7	23.1	22.5	23.5	22.1	23.5	22.9	22.6	22.7	
CARBON TOTAL KG /DAY (TOC)	ACTUAL	11.5	8.6	7	12.4	16.7	16.1	12.2	14.1	15.3	9.8	7.6	8.2	11.6	
	GUIDELINE														

NOTE: S/C -SEE COMMENT, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW
****
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME & PLANT LOCATION: Ogilvie Mills Ltd. Thunder Bay

IMIS NO.: 0000880005

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Food and beverage

SIC CODE: 105

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 3 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Starch and gluten are separated from grain flour.

EFFLUENT CHARACTERISTICS: Contains suspended solids (wheat husk) and starches /glutens.

EFFLUENT TREATMENT: Secondary biological anaerobic /aerobic.

DISCHARGE TYPE: continuous surface

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): (Dec 31, 1982) Control Order limits BOD5 to 900 kg/day, averaged over 30 days.

CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A limits BOD5 to 900 kg/day, averaged over 30 working days. (Aug 30, 1985)

MOE OR FEDERAL GUIDELINES: MOE guideline for suspended solids (RSP)

EXCEEDANCES: A total of 106 daily Certificate of Approval BOD5 exceedances, based on a 30 working day rolling average,were reported throughout the year. The majority occurred between June and August. Exceedances of the suspended solids objectives is due to physical constraint of the plant.

REMEDIAL ACTIONS: Initially the loading to the digester was lowered in an attempt to reduce BOD5. The wet process was converted in August, with some stabilization problems. It reduced hydraulic flow by 25%. The company is negotiating with the municipality to direct their effluent to Thunder Bay's Water Pollution Control Plant for additional treatment.

COMMENTS: Treatment plant is state-of-the-art for BOD effluent reduction. The gas train has been modified to allow biogas to be burned in the boiler.

Three trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 10.0 %, 6.3 % and 7.1 %

03/08/91

000088-00-0(5)   OGILVIE MILLS LTD.   THUNDER BAY   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1070	1110	1170	1090	1070	1020	1070	590	820	960	950	870	983	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	770	800	890	820	810	950	1200	890	720	900	750	850	863	2
KG /DAY (BOD5)	REQUIREMENT	900	900	900	900	900	900	900	900	900	900	900	900	900	
RESIDUE PARTIC.	ACTUAL	2190	1930	1960	1870	1920	2280	1650	1740	1360	1630	1870	2570	1914	12
KG /DAY (RSP)	GUIDELINE	16.1	16.7	17.6	16.4	16.1	15.3	16.1	8.9	12.3	14.4	14.3	13.1	14.8	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS   -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 14 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 42% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Omstead Foods Ltd.
& PLANT LOCATION: Wheatley

IMIS NO.: 0001050004

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 102, 103, 1032

RECEIVING WATERBODY: DIRECT: Muddy Creek
INDIRECT: 1.0 km Lake Erie

DESCRIPTION OF ACTIVITY: Fish is processed and vegetables grown locally are processed/frozen.

EFFLUENT CHARACTERISTICS: Contains fish and vegetable processing waste (BOD, suspended solids).

EFFLUENT TREATMENT: Extended aeration system.

DISCHARGE TYPE: Continuous, when plant is operating, through an open outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: Yes. Exceedance of BOD5, suspended solids (RSP),

REMEDIAL ACTIONS: Poor effluent quality occurs primarily during the winter months, but overall quality is improving . At the request of the Ministry an engineering study was carried out to identify specific operational problems contributing to the exceedances and develop remdial actions. Based on the engineering studies, the company submitted an Application for a Certificate of Approval and Pre-Design Report for upgrading the treatment works . It is anticipated that a Certificate of Approval for the proposed works will be issued with detailed engineering design and construction to follow.

COMMENTS: Compliance is against total plant discharge.

03/21/91

000105-00-0(4) OMSTEAD FOODS LIMITED WHEATLEY REPORT DATE: 25 FEB 91
S U M M A R Y FOR EMIS. TYPE: 13 CLARIFIER EFFLUENT DISCHARGED INTO: 02/003/2280 MUDDY CR.
INCLUDES CONTROL POINTS: 0100 0200
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2176	1723	1616	2052	2783	2437	4618	7417	7428	7259	6029	1694	3936	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.1	6.9	7	6.8	6.8	6.7	6.85	6.9	6.95	7.15	7.25	7.2	7.0	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	38.9	76.4	25.6	49.4	25.3	13.5	21.8	31.4	19.4	26.5	69.9	28.3	35.5	4
KG /DAY (BOD5)	GUIDELINE	32.6	25.8	24.2	30.8	41.7	36.6	69.3	111.3	111.4	108.9	90.4	25.4	59.0	
NH3-N TOTAL	ACTUAL	2	4.4	0.3	35.6	62.7	1.5	2	1.9	1.6	2.3	7.7	0.8	10.2	2
KG /DAY (NNHTUR)	GUIDELINE	21.8	17.2	16.2	20.5	27.8	24.4	46.2	74.2	74.3	72.6	60.3	16.9	39.4	
PHOSPHOR UNF.TOT.	ACTUAL	1.1	1.8	0.7	2	2.5	0.5	5	2.5	1	1	1.5	0.8	1.70	0
KG /DAY (PPUT)	GUIDELINE	2.18	1.72	1.62	2.05	2.78	2.44	4.62	7.42	7.43	7.26	6.03	1.69	3.94	
RESIDUE PARTIC.	ACTUAL	70.5	65.3	22.4	196.2	23.9	9	26.1	42.1	30.7	50.3	88.4	39.8	55.4	4
KG /DAY (RSP)	GUIDELINE	32.64	25.85	24.24	30.78	41.75	36.56	69.27	111.26	111.42	108.89	90.44	25.41	59.0	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1989.

000105-00-0(4) OMSTEAD FOODS LIMITED WHEATLEY REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - RECTANGULAR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL							2954	4821	4828	4718	3919		4248	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL							7	6.9	7	7.2	7.3		7.08	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL							13.2	17.6	12.2	15.1	49.9		21.6	
KG /DAY (BOD5)	GUIDELINE							44.3	72.3	72.4	70.8	58.8		63.7	0
NH3-N TOTAL	ACTUAL							1.1	0.9	0.7	1.2	7.1		2.2	
KG /DAY (NNHTUR)	GUIDELINE							29.5	48.2	48.3	47.2	39.2		42.5	0
PHOSPHOR UNF.TOT.	ACTUAL							4.1	1.9	0.7	0.6	0.9		1.64	
KG /DAY (PPUT)	GUIDELINE							2.95	4.82	4.83	4.72	3.92		4.25	1
RESIDUE PARTIC.	ACTUAL							15.3	27.2	22	33.4	63.3		32.2	
KG /DAY (RSP)	GUIDELINE							44.3	72.3	72.4	70.8	58.8		63.7	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 25, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1989.

000105-00-0(4) OMSTEAD FOODS LIMITED WHEATLEY REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - ROUND CLAR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2176	1723	1616	2052	2783	2437	1664	2596	2600	2541	2110	1694	2166	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.1	6.9	7	6.8	6.8	6.7	6.7	6.9	6.9	7.1	7.2	7.2	6.9	
(PH)	GUIDELINE														0
BOD 5 DAY	ACTUAL	38.9	76.4	25.6	49.4	25.3	13.5	8.6	13.8	7.2	11.4	20	28.3	26.5	
KG /DAY (BOD5)	GUIDELINE	32.6	25.8	24.2	30.8	41.7	36.6	25	38.9	39	38.1	31.7	25.4	32.6	4
NH3-N TOTAL	ACTUAL	2	4.4	0.3	35.6	62.7	1.5	0.9	1	0.9	1.1	0.6	0.8	9.32	
KG /DAY (NNHTUR)	GUIDELINE	21.8	17.2	16.2	20.5	27.8	24.4	16.6	26	26	25.4	21.1	16.9	21.8	2
PHOSPHOR UNF.TOT.	ACTUAL	1.1	1.8	0.7	2	2.5	0.5	0.9	0.6	0.3	0.4	0.6	0.8	1.02	
KG /DAY (PPUT)	GUIDELINE	2.18	1.72	1.62	2.05	2.78	2.44	1.66	2.6	2.6	2.54	2.11	1.69	2.18	1
RESIDUE PARTIC.	ACTUAL	70.5	65.3	22.4	196.2	23.9	9	10.8	14.9	8.7	16.9	25.1	39.8	42.0	
KG /DAY (RSP)	GUIDELINE	32.6	25.8	24.2	30.78	41.7	36.6	25	38.9	39	38.1	31.7	25.4	32.6	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro Atikokan TGS
& PLANT LOCATION: Atikokan

IMIS NO.: 0001842301

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Snow Lake
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Neutralization, Clarification, Filtration.
Sewage to primary lagoons.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes. Temperature rise limits are 11.2° C from May to October and 16.6° C from November to April.

EXCEEDANCES: None. Company is in compliance

REMEDIAL ACTIONS:

COMMENTS: The C of A stipulates a mixing zone and there were no excedances at the C. of A. control point.

03/21/91

000184-23-0(1) ONTARIO HYDRO
CONTROL POINT: 0100 DATA FOR 1989
FLOW/CONCENTRATION PARAMETERS

ATIKOKAN

REPORT DATE: 7 MAY 91

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	501600	314300	272300	670000	600000	660000	0	129000	570300	570300	133300	570300	415950	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP RISE	ACTUAL	11	14	14	11	11	11	1	11	+ 13.25	+ 13.75	12	11.25	11.19	0
DEG.C (FWTINC)	GUIDELINE	16.6	16.6	16.6	16.6	11.2	11.2	11.2	11.2	11.2	11.2	16.6	16.6	13.90	
TEMP, WATER	ACTUAL	11	14	15	13	21	27	19	30	29	24.75	19	12.25	19.58	
DEG.C (FWTEMP)	GUIDELINE														
PH	ACTUAL	7.5	7.3	7.4	7.4	7.6	7.6			7.3	7.7	8.2	8.0	7.6	0
	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	2.04	4.38	1.67	0.96	7.35	2.47			2.27	3.1	4.7	1.73	3.07	0
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15			15	15	15	15	15	
RESIDUE FILTERED	ACTUAL	77.2	104	78.33	70	64.5	79.67			97		76.5	73	72.02	
MG/L (RSF)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

+ C OF A STIPULATES A MIXING ZONE. DATA REPRESENTS END OF PIPE SAMPLE

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro Bruce Nuclear Power Development Services (BNPDS) Sewage Treatment Plant Tiverton	IMIS NO.: 0001840107
MOE REGION:	Southwest	DISTRICT: Owen Sound
INDUSTRIAL SECTOR:	Electric Power Generation	SIC CODE: 4999
RECEIVING WATERBODY:	DIRECT: Lake Huron INDIRECT:	

DESCRIPTION OF ACTIVITY: Plant treats sanitary wastes from the generating station complex. Also treats laundry waste and oily wastes.

EFFLUENT CHARACTERISTICS: Contains phosphorus, BOD and suspended solids

EFFLUENT TREATMENT: Secondary sewage treatment with phosphorus removal.

DISCHARGE TYPE: Continuous to Douglas Point outfall.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

12/12/90

000184-01-0(7) ONTARIO HYDRO BRUCE REPORT DATE: 17 JAN 91
CONTROL POINT: NPD NGS - SEWAGE PROCESSING FOR 1989

FLOW/LOADINGS	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	53845	34804	43125	44808	53393	43322	40289	56594	34285	33210	35733	27088	41708	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	102	83	82	121	77	49	36	54	39	65	45	39	66	0
KG/DAY (BOD5)	GUIDELINE	808	522	647	672	801	650	604	849	514	498	536	406	626	
KJELDAHL	ACTUAL	1.3	1.5	1.5	1.6	1.5	1.2	0.6	0.5	1.2	1.3	1.4	1.4	1.2	
KG/DAY (NNKUR)	GUIDELINE														
PHOSPHORUS	ACTUAL	13.5	8.7	8.6	11.2	21.3	6.5	8.1	5.7	10.3	14.9	7.1	8.1	10.3	0
KG/DAY (PPUT)	GUIDELINE	53.8	34.8	43.1	44.8	53.4	43.3	40.3	56.6	34.3	33.2	35.7	27.1	41.7	
PH	ACTUAL	6.9	7.1	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.3	7.2	7.2	7.2	0
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	11092	6297	7288	10440	11586	9574	8803	10753	7114	7821	8344	6433	8795	
KG/DAY (RSF)	GUIDELINE														
RESIDUE PARTICUL	ACTUAL	393	210	205	311	254	182	181	218	197	247	170	176	229	0
KG/DAY (RSP)	GUIDELINE	808	522	647	672	801	650	604	849	514	498	536	406	626	

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro Nuclear Powered Thermal
& PLANT LOCATION: Bruce Generating Stns. A & B
Tiverton

IMIS NO.: 0001942507

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4999

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation
EFFLUENT CHARACTERISTICS: Temperature

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separaters.

DISCHARGE TYPE: Continuous (once-through condenser cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Temperature Rise guideline is 11.1 ^{0}C from middle of month of April to the middle of the month of December. The rest of the year the guideline is 13.0 ^{0}C.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000184-42-0(8)   ONTARIO HYDRO   BRUCE   REPORT DATE: 17 JAN 91
CONTROL POINT: BRUCE NGS - A FOR 1989
CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9504000	10782720	10782720	9244800	3291840	6549120	9365760	8657280	9961920	11517120	12156480	9512640	9277200	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.1	9.8	11.1	12.1	11.2	14.8	20.5	24.7	20.8	19.5	15.5	11.7	15.2	0
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
TEMP RISE	ACTUAL	9.9	9.1	9.6	9.3	4.7	4.3	10.3	8.2	5.8	7.2	7.0	8.8	7.9	0
DEG.C (FWTINC)	GUIDELINE	13.0	13.0	13.0	S/C	11.1	11.1	11.1	11.1	11.1	11.1	11.1	S/C		

NOTE: PH LIMIT 5.5-9.5, O* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT
****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989

000184-43-0(7)   ONTARIO HYDRO   BRUCE   REPORT DATE: 17 JAN 91
CONTROL POINT: BRUCE NGS - B FOR 1989
CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	16312320	15111360	16018560	16493760	16450560	16441920	15482880	16027200	16398720	14662080	14143680	16312320	15821280	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.5	11.9	12.2	12.7	16.0	20.2	18.5	25.0	24.6	21.2	18.1	13.8	17.1	0
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
TEMP RISE	ACTUAL	3.9	9.6	9.1	8.6	8.1	9.1	8.3	9.4	9.8	9.1	9.3	9.9	8.7	0
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	

NOTE: PH LIMIT 5.5-9.5, O* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT
****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989

WASTEWATER DISCHARGE SUMMARY
1989

IMIS NO: 0001840107

COMPANY NAME: Ontario Hydro Bruce
Heavy Water Plant
& PLANT LOCATION: Tiverton

DISTRICT: Owen Sound

MOE REGION: Southwest

SIC CODE:4911

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Heavy water is produced for use in nuclear reactors.

EFFLUENT CHARACTERISTICS: Temperature and dissolved hydrogen sulphide.

EFFLUENT TREATMENT: Aeration/oxidization lagoon, sedimentation, steam stripping

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

08/02/89

000184-44-0(4)   ONTARIO HYDRO   BRUCE   REPORT DATE: 17 JAN 91
CONTROL POINT: BRUCE HEAVY WATER PLANT FOR 1989
CONCENTRATION PARAMETERS

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1721002	1726445	1720224	1726531	1648253	1690848	1714349	1718496	1723075	1713485	1726013	1719360	1712340	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	11.05	11.18	9.96	12.05	12.00	14.87	18.20	24.09	22.01	19.23	17.13	12.10	15.32	0
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
TEMP RISE	ACTUAL	9.47	10.26	8.44	8.79	5.00	5.09	8.56	8.17	6.22	6.05	7.98	8.34	7.70	0
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	
SULPHIDES	ACTUAL	3.60	3.39	3.53	3.44	3.33	3.48	3.18		4.07	4.90	6.62	5.88	3.78	0
H2S KG/DAY	GUIDELINE	215	215	215	215	215	215	215		215	215	215	215	215	

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 0 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Ontario Hydro - Lakeview TGS Toronto	IMIS NO.: 0001843101
MOE REGION:	Central	DISTRICT: Halton-Peel
INDUSTRIAL SECTOR:	Electrical Power Generation	SIC CODE:4911
RECEIVING WATERBODY:	DIRECT: Lake Ontario INDIRECT:	

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station

EFFLUENT CHARACTERISTICS: Temperature.

EFFLUENT TREATMENT: Settling lagoon, filtration, neutralization, oily water separators, recycling.

DISCHARGE TYPE: Continuous (once-through condenser cooling water)

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: The company exceeded their temperature increase guidelines in four out of twelve months.

REMEDIAL ACTIONS: Lakeview TGS has a control procedure in place which engages additional cooling water pumps when their effluent temperature increase approaches the guideline value. The company is working to correct the situation.

COMMENTS: This plant is subject to MISA, Electrical Power Generating sector.

03/12/91

000184-31-0(1) ONTARIO HYDRO
CONTROL POINT: 0100 DATA FOR 1989

LAKEVIEW TGS, TORONTO

REPORT DATE: 9 APR 91

CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4500000		3000000	2700000	2300000	3000000	4000000	3400000	3500000	3500000	3600000	4700000	3472727	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	* 12		* 14	* 17	* 16	* 24.5	* 28	* 30	* 27	* 22	* 18	* 12.4	20.1	0
DEG.C (FWTEMP)	GUIDELINE	32.2		32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
TEMP RISE	ACTUAL	* 11		* 11.25	* 12	* 11	* 8	* 8	* 9.3	* 9	* 11.6	* 11	* 11.8	10.4	4
DEG.C (FWTINC)	GUIDELINE	11.1		11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT, * TEMP - MAXIMUM HOURLY AVERAGE
****

THIS DISCHARGE EXCEEDED ITS MONTHLY LIMITS 4 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1988.
::

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro Lambton TGS
& PLANT LOCATION: Courtright

IMIS NO.: 0001841204

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal used at this generating station

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Settling lagoon, neutralization, filtration.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: One monthly exceedance of rise in temperature.

REMEDIAL ACTIONS: Further tightening of process contol required.

COMMENTS: Ontario Hydro reduced exceedances from 5 in 1988, to 1 in 1989 using improved control procedures.

03/21/91

000184-12-0(4) LAMBTON TGS COURTRIGHT REPORT DATE: 18 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - NET LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	3600000	3290000	2410000	2340000	2150000	1920000	2960000	2460000	1900000	2610000	2960000	2750000	3000000	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	657	726	0	0	4060	890	2492	0	0	0	0	773	0
KG /DAY (RSP)	GUIDELINE	54000	49350	36150	35100	32250	28800	44400	36900	28500	39150	44400	41250	39188	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000184-12-0(4) LAMBTON TGS COURTRIGHT REPORT DATE: 22 JAN 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL	21960	7238	10363	11178	19565	7488	7400	19188	6080	33408	20720	13750	14862	
KG /DAY (RSP)	GUIDELINE														

NOTE: S/C -SEE COMMENT, N/A -NOT AVAIALBLE, PH-LIMITS - ,

****

THIS PAGE PRESENTED FOR COMPARISON PURPOSES ONLY

000184-12-0(4) LAMBTON TGS COURTRIGHT REPORT DATE: 18 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
WATER TEMP	ACTUAL	15.1	16	17.7	21.1	25.6	29.3	34.6	35	34.2	29.7	25	16.6	25.0	0
DEG.C (FWTEMP)	GUIDELINE	32.5	32.5	32.5	32.5	32.5	35	35	35	35	32.5	32.5	32.5	33.3	
TEMP RISE	ACTUAL	13.5	15.3	17.6	15.5	16.5	13.3	13.7	13.5	13.6	15.5	14	16.3	14.9	1
DEG.C (FWTINC)	GUIDELINE	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

IMIS NO.: 0001843309

COMPANY NAME: Ontario Hydro - Lennox TGS
& PLANT LOCATION: South Fredericksburg (Bath)

DISTRICT: Kingston

MOE REGION: Southeast

SIC CODE: 4911

INDUSTRIAL SECTOR: Electrical Power Generation

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Oil fired thermal generating station

EFFLUENT CHARACTERISTICS: heat and oil

EFFLUENT TREATMENT: Dissolved air flotation, oily water separation, "API Type" separators on yard drainage, neutralization.

DISCHARGE TYPE: Continuous (once through condenser cooling water) and strorm water drainage.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: BOD5 and RSP 15 mg/l, from 'Objectives for Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: Four outfalls had nine exceedances of RSP on a monthly basis.

REMEDIAL ACTIONS: Amended Certificate of Approval for treatment works to include technically achievable effluent quality objectives. Assess possible modifications to improve suspended Solids removal efficiency under high flow conditionss.

COMMENTS: Plant has been recommissioned. MISA data is being reviewed to determine need for further controls on discharge.

03/12/91

000184-33-0(9) LENNOX GENERATING STATION - ONTARIO HYDRO BATH REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - LAGOON DISCHARGE

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL						1450	1233			1040			1241	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL						5	5			2			4	0
KG /DAY (BOD5)	GUIDELINE						21.7	18.5			15.6			18.6	
PHOSPHOR UNF.TOT.	ACTUAL						0	0			0.1			0.033	0
KG /DAY (PPUT)	GUIDELINE						1.45	1.23			1.04			1.24	
RESIDUE PARTIC.	ACTUAL						15.4	8			26			16.5	1
KG /DAY (RSP)	GUIDELINE						21.7	18.5			15.6			18.6	

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 9, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1989.

000184-33-0(9) LENNOX GENERATING STATION - ONTARIO HYDRO BATH REPORT DATE: 28 FEB 91
CONTROL POINT: 0200 DATA FOR 1989 - COOLING WATER

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		2500000	2500000	630001	620001	800001	710001	980001	1000000	1300000	1900000	2100000	1000000	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP RISE	ACTUAL		0.6	1.35	0.71	0.5	1	2	1.2	1.2	1.3	1.9	2.2	1.27	0
DEG.C (FWTINC)	GUIDELINE		11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 11, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000184-33-0(9) LENNOX GENERATING STATION - ONTARIO HYDRO BATH REPORT DATE: 28 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - OIL WASTE EFFLUENT

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		5200	4000	1300	1300	844	910	827	1203	1148	1240	1240	1747	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.1	8	8.2	8.2	8.2	8.2	8.1	8	8.2	8.3	8.3	8.16	0
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		125	69.2	2.7	7.9	3.2	1.8	0	6.4	0	4	19.3	21.8	3
KG /DAY (RSP)	GUIDELINE		78	60	19.5	19.5	12.7	13.7	12.4	18	17.2	18.6	18.6	26.2	

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1989.

000184-33-0(9) LENNOX GENERATING STATION - ONTARIO HYDRO BATH REPORT DATE: 28 FEB 91
CONTROL POINT: 0400 DATA FOR 1989 - WEST INTERCEPTOR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		1800	3600	2900	2700	2398	3782	3640	3234	3122	5400	4900	3407	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.2	8.1	8.1	8.2	8.1	8.1	8	8	8.1	8.2	8.3	8.13	0
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		14.1	58	27	41.8	39	72	38	8	31	35	18	34.7	
KG /DAY (RSP)	GUIDELINE		27	54	43.5	40.5	35.9	56.7	54.6	48.5	46.8	81	73.5	51.1	4

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1989.

000184-33-0(9) LENNOX GENERATING STATION - ONTARIO HYDRO BATH REPORT DATE: 28 FEB 91
CONTROL POINT: 0500 DATA FOR 1989 - EAST INTERCEPTOR

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		4100	5400	5100	4000	3048	2338	4518	4818	5396	8600	7300	4965	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL		8.3	8.1	8.3	8.2	8.1	8.2	8	8.1	8	8.3	8.5	8.19	0
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL		33.6	33.5	53	45.1	381	12	9	9	25	37	52	62.7	
KG /DAY (RSP)	GUIDELINE		61.5	81	76.5	60	45.7	35.1	67.8	72.3	81	129	109.5	74.5	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro NanticokeTGS
& PLANT LOCATION: Nanticoke

IMIS NO.: 0001840008

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk/Brant

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE:4911

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Lake water for cooling purpose has no contact with any process pipes, but ash lagoon effluent is discharged into once trhrough condenser cooling water. A temperature increase does result.

EFFLUENT TREATMENT: Neutralization, oil water separation.

DISCHARGE TYPE: Continuous (once through condenser cooling water)

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (Nov 27,1985): C. of A. #4-106-70-006 and revised Nov. 27, 1985.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: * Nanticoke TGS Tempering Exemption in effect July 1,1983, and extended until April 1, 1991.

03/08/91

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS
CONTROL POINT: 0200 DATA FOR 1989
FLOW/CONCENTRATION PARAMETERS

NANTICOKE

REPORT DATE: 25 FEB 91

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	11600000	9420000	8210000	9190000	7990000	6660000	7300000	6280000	6000000	7450000	6634000	7970000	8000000	
M3 /DAY (FTFLOW)	GUIDELINE														
WATER TEMP	ACTUAL	8	8.5	8.5	8.7	13.2	17.8	22.4	24.8	24.9	16.9	13.9	9.3	14.7	0
DEG.C (FWTEMP)	GUIDELINE	35	35	35	35	35	35	35	35	35	35	35	35	35	
TEMP RISE	ACTUAL	7.3	8.1	7.4	5.5	4.5	5.8	5.9	6.3	6	4.3	5.4	6	6.04	0
DEG.C (FWTINC)	GUIDELINE	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro Nanticoke TGS
& PLANT LOCATION: Nanticoke

IMIS NO.: 0001840008

MOE REGION: West Central

DISTRICT: Haldimand-Norfolk/Brant

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT CHARACTERISTICS: Heavy metals, suspended solids, pH, SO4

EFFLUENT TREATMENT: Primary and secondary ash settling cells, primary and secondary settling lagoons, neutralization.

DISCHARGE TYPE: Continuous ash lagoons effluent

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (Nov 27,1985): C. of A. #4-106-70-006 and revised Nov. 27,1985

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Water quality data applies to effluent from ash lagoon only. Wastewater from lagoon is mixed with condenser cooling water prior to discharge.

03/08/91

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS
CONTROL POINT: 0100 DATA FOR 1989 - NET DATA

NANTICOKE

REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	57806	50032	38645	37567	31161	33100	37613	36548	36933	35355	38267	51935	40414	
M3 /DAY (FTFLOW)	GUIDELINE														
CHROMIUM UNF.TOT.	ACTUAL	0	0	0*		0	0	0	0.365	0	0.354	0.383	1.039	0.188	0
KG /DAY (CRUT)	REQUIREMENT	5.78	5	3.86		3.12	3.31	3.76	3.65	3.69	3.54	3.83	5.19	4.07	
IRON UNF.TOT.	ACTUAL	0*	0*	0		0	0*	0	0*	0*	0	0*	0*	0*	0
KG /DAY (FEUT)	REQUIREMENT	28.9	25	19.3		15.6	16.6	18.8	18.3	18.5	17.7	19.1	26	20.3	
PHOSPHOR UNF.TOT.	ACTUAL	0.809	0.55	0.232		0.561	0.166	0.188	0.402	0.369	0.283	0.574	0.519	0.423	0
KG /DAY (PPUT)	REQUIREMENT	5.78	5	3.86		3.12	3.31	3.76	3.65	3.69	3.54	3.83	5.19	4.07	
RESIDUE FILTERED	ACTUAL	27337	26859	19512	16018	7277	8200	12737	15127	13820	17116	20180	28836	17752	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0*	0*	70.8	0*	269.9	0*	0*	0*	199.4	33.9	51.7	642.3	14.4	0
KG /DAY (RSP)	GUIDELINE	867	750	580	564	467	497	564	548	554	530	574	779	606	
SULPHATE UNF.REAC	ACTUAL	11116	10003	7686	44.1	4379	6485	7772	6878	6569	6712	7870	9226	7062	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS
CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS

NANTICOKE

REPORT DATE: 12 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CHROMIUM UNF.TOT.	ACTUAL	1.27	1	0.89		1.37	1.46	1.66	1.1	0.74	1.06	1.15	2.1	1.25	
KG /DAY (CRUT)	REQUIREMENT														
IRON UNF.TOT.	ACTUAL	1.27	1	0.79		1.37	1.46	1.66	0.73	0.74	1.77	3.45	23.42	3.42	
KG /DAY (FEUT)	REQUIREMENT														
PHOSPHOR UNF.TOT.	ACTUAL	0.809	0.55	0.232		0.561	0.166	0.188	0.402	0.369	0.283	0.574	0.423	0.414	
KG /DAY (PPUT)	REQUIREMENT														
RESIDUE FILTERED	ACTUAL	37489	36163	26716	22063	12416	13587	18904	21333	20522	22831	26168	37022	24601	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	288	300.6	144.3	52.66	323.2	55.67	29	65.13	245.9	109.7	678.13	721.72	251.17	
KG /DAY (RSP)	GUIDELINE														
SULPHATE UNF.REAC	ACTUAL	12503	11260	8783	910	5190	7324	8724	7867	7469	7540	8774	10556	8075	
KG /DAY (SSO4UR)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME:
& PLANT LOCATION: Ontario Hydro Pickering Nuclear Powered Generating Stns. A&B.
Pickering

IMIS NO.: 0001840206 (A)
0001840214 (B)

MOE REGION: Central

DISTRICT: Toronto

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 491

RECEIVING WATERBODY: **DIRECT:** Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power Generation

EFFLUENT CHARACTERISTICS: Temperature

EFFLUENT TREATMENT: Neutralization, RLWMS Tanks, Oily Water Separators.

DISCHARGE TYPE: Continuous (once through condenser cooling water)

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** (A) July 27, 1971; (B) June 11, 1981

MOE OR FEDERAL GUIDELINES:

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: This company is subject to MISA, electrical power generating sector

11/09/90

000184-02-0(6) PICKERING NUCLEAR GENERATING STATION - A,B PICKERING REPORT DATE: 10 APR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	7230000	75000000	7225806	8700000	9200000	9100000	8200000	7000000	9000000	7600000	6600000		14077800	
	GUIDELINE														
WATER TEMP DEG.C (FWTEMP)	ACTUAL	15.1	12.4	14.3	16.3	19.2	22.6	22.3	27.2	25.5	18.3	15.6		19	0
	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2		32.2	
TEMP RISE DEG.C (FWTINC)	ACTUAL	8.8	6.7	8.5	9.2	9.9	8.9	6.9	7.3	6.7	7.2	6.9		7.91	0
	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1		11.1	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000184-02-1(4) ONTARIO HYDRO PICKERING REPORT DATE: 10 APR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	10200000	10678571	10645161	1100000	11000000	11000000	11000000	11000000	11000000	10000000	10300000	8300000	9685311	
	GUIDELINE														
WATER TEMP DEG.C (FWTEMP)	ACTUAL	17.5	15.8	15.7	16.2	16	19.7	24.2	25.5	24.7	17.9	15.8	15.9	18.7	0
	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
TEMP RISE DEG.C (FWTINC)	ACTUAL	10.7	10.2	9.5	9.2	7.2	6.5	9	8.9	7.3	7.1	7.8	9.6	8.58	0
	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Ontario Hydro Thunder Bay, TGS
& PLANT LOCATION: Thunder Bay

IMIS NO.: 0001841907

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

SIC CODE: 4911

RECEIVING WATERBODY: **DIRECT:** Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired Thermal Generating Station

EFFLUENT CHARACTERISTICS: Hot water, temperature

EFFLUENT TREATMENT: Coagulant aid, sedimentation., neutralization, filtration

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Yes. Temperature rise - 10^{0} C

EXCEEDANCES: None. Company has met the guideline limits.

REMEDIAL ACTIONS:

COMMENTS:

01/11/91

000184-19-0(7) ONTARIO HYDRO THUNDER BAY REPORT DATE: 1 MAY 91
CONTROL POINT: 0100 DATA FOR 1989
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1140000	1214600	881000	792000	621000	992000	1188000	1018700	1102800	586400	526600	502900	880500	
M3 /DAY (FTFLOW)	GUIDELINE														
TEMP RISE	ACTUAL	7	7	7	7	7	6.3	6				7	7.3	6.8	
DEG.C (FWTINC)	GUIDELINE	11.1	11.1	11.1	11.1	11.1	11.1	11.1				11.1	11.1	11.1	0
TEMP, WATER	ACTUAL	7	7	7.3	11	20.75	21.3	25.75			19	14	8	14.11	
DEG.C (FWTEMP)	GUIDELINE	32.2	32.2	32.2	32.2	32.2	32.2	32.2			32.2	32.2	32.2	32.2	0
PH	ACTUAL	7.1		7.1	7.3	7.23	7.3	7.28	7.35	7.13	6.9	7.15		7.18	
	GUIDELINE														0
RESIDUE PARTIC.	ACTUAL	9.6		10.25	26.8	15.5	15	9.8	5	4.5	13.75	9.3		11.95	
MG/L (RSP)	GUIDELINE	22.4		19.6	45	28.75	31.67	21.8	22.25	23.75	47	36.3		29.85	0
RESIDUE FILTERED	ACTUAL	96		118.25	121.6	94.25	90.6	81.4	78	101.5	164	164.6		111.02	
MG/L (RSF)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 39, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: ORENCO (Ontario Rendering) Dundas

IMIS NO.: 0041670001

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1010, 1050, 5210

RECEIVING WATERBODY:
DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Animal waste processing to produce tallow and meat meal.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables)

EFFLUENT TREATMENT: Conventional sewage treatment plant with polishing lagoon.

DISCHARGE TYPE: Seasonal discharge: No discharge for months of May to October inclusive in 1989.

COMPANY LIMITS SET BY: **MOE GUIDELINES:** MOE guidelines.

EXCEEDANCES: 2 monthly exceedances for suspended solids (RSP).

REMEDIAL ACTIONS: High suspended solids due to runoff/erosion from fields upstream of sampling point. Sampling locations changed in mid 1990 to reflect actual quality of effluent discharged from plant.

COMMENTS:

03/08/91

004167-00-0(1)   ORENCO (ONTARIO RENDERING)   DUNDAS   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	1554000	1571000	157101	170201							161501	185402	633201	
PH (PH)	ACTUAL GUIDELINE	7.7	7.2	7.4	8							7.1	7.2	7.43	0
PHOSPHOR UNF.TOT. KG /DAY (PPUT)	ACTUAL REQUIREMENT	1.2	1.7	0.7	0.53							0.81	1.3	1.04	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

004167-00-0(1)   ORENCO (ONTARIO RENDERING)   DUNDAS   REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	1554000	1571000	157101	170201							161501	185402	633201	
BOD 5 DAY MG/L AS O (BOD5)	ACTUAL GUIDELINE	11 15	5.1 15	10 15								10 15	4 15	8.02 15	0
NH3-N TOTAL MG/L AS N (NNHTFR)	ACTUAL GUIDELINE	4.9 10	1.9 10	1.4 10	0.25 10							1.4 10	1.9 10	1.96 10	0
PH (PH)	ACTUAL GUIDELINE	7.7	7.2	7.4	8							7.1	7.2	7.43	0
PHOSPHOR UNF.TOT. MG/L (PPUT)	ACTUAL REQUIREMENT	0.8 4.54	1.1 4.54	0.45 4.54	0.31 4.54							0.5 4.54	0.7 4.54	0.643 4.54	0
RESIDUE PARTIC. MG/L (RSP)	ACTUAL GUIDELINE	78 15	5 15	2 15								15 15	39 15	27.8 15	2
SOLVENT EXTRACT. MG/L (SOLEXT)	ACTUAL GUIDELINE	5 10			6.5 10							8 10	4 10	5.88 10	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 OUT OF 32, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Petro-Canada Products Inc. - Mississauga Plant .
& PLANT LOCATION: Mississauga

IMIS NO.: 0000130104

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and inorganics at parts per billion range.

EFFLUENT TREATMENT: Activated sludge. Once through cooling water receives gravity separation before discharge. Process, ballast and essentially all storm water receive primary treatment, filtration on dual media and secondary treatment before diacharge.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Effluent Quality Objectives for Petroleum Refineries

EXCEEDANCES: Exceeded suspended solids 8 times.

REMEDIAL ACTIONS: Petro-Canada modified their sludge handling and disposal system in 1990.

COMMENTS: This company is subject to MISA, Petroleum Refining sector.

Toxicity results obtained under the MISA program are:

The data for twelve trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish. Also ten bioassays conducted on two cooling water discharges were all determined to have been non-acutely lethal.

03/13/91

000013-01-0(4) LAKE ONTARIO REFINERY - MISSISSAUGA PLANT MISSISSAUGA

REPORT DATE: 15 MAR 91

CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	8959	8591	9601	10966	8584	13388	11559	12935	12019	11655	13647		11082	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.58	7.51	7.52	7.22	7.02	7.32	7.27	7.25	7.44	7.84	7.66		7.42	0
(PH)	GUIDELINE														
NH3-N FIL.REAC	ACTUAL	14.65	15.78	12.13	32.37	2.04	118.82	39.64	44.16	89.49	97.95	12.1		43.56	0
KG /DAY (NNH3FR)	GUIDELINE	89.59	85.91	96.01	109.66	85.84	133.88	115.59	129.35	120.19	116.55	136.47		110.82	
PHENOLS UNF-REAC	ACTUAL	0.07	0.04	0.04	0.05	0.04	0.11	0.13	0.14	0.16	0.08	0.25		0.10	0
KG /DAY (PHNOL)	GUIDELINE	0.18	0.17	0.19	0.22	0.17	0.27	0.23	0.26	0.24	0.23	0.27		0.22	
RESIDUE PARTIC.	ACTUAL	93.3	82.8	88.0	918.9	136.2	224.2	392.8	531.6	355.6	277.6	396.5		318.0	8
KG /DAY (RSP)	GUIDELINE	134.4	128.9	144.0	164.5	128.8	200.8	173.4	194.0	180.3	174.8	204.7		166.2	
SOLVENT EXTRACT.	ACTUAL	41.17	24.36	23.67	54.64	23.6	41	37.37	77.73	88.16	58.19	71.51		49.22	0
KG /DAY (SOLEXT)	GUIDELINE	89.59	85.91	96.01	109.66	85.84	133.88	115.59	129.35	120.19	116.55	136.47		110.82	
SULPHIDE FIL.REAC	ACTUAL	0.47	0.35	0.27	0.29	0.37	0.65	2.03	4.43	2.24	1.22	2.32		1.33	
KG /DAY (SSIDFR)	GUIDELINE														
CARBON TOTAL	ACTUAL	179.66	99.58	123.48	238.23	158.57	275.58	205	244.11	226.98	271.54	367.08		217.26	
MG/L (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Petro-Canada Products Inc. - Oakville Plant.
& PLANT LOCATION: Oakville

IMIS NO.: 0000530006

MOE REGION: Central

DISTRICT: Halton-Peel

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 365

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and inorganics in the parts per billion range

EFFLUENT TREATMENT: Activated sludge. Process water and some storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario Effluent Quality Objectives for Petroleum Refineries.

EXCEEDANCES: Residue particulate was exceeded on 11 occasions in 1989.

REMEDIAL ACTIONS: A major modification to the existing wastewater effluent treatment plant involving additional clarifiers, new dual media filters and aeration basins was completed in December,1989. These modifications have brought this source into compliance.

COMMENTS: This company is subject to MISA, Petroleum Refining sector.

Toxicity results obtained under the MISA program are:

The data for two of the thirteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 71.0 % and 80.6 %. The remaining eleven samples were determined to have been non-acutely lethal.

03/14/91

000053-00-0(6)   LAKE ONTARIO REFINERY - OAKVILLE PLANT   OAKVILLE   REPORT DATE: 18 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4635	4663	4261	4626	5193	5768	5507	5328	5021	4859	4857		4974	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.15	8.26	8.2	7.86	8.06	8.17	8.16	7.85	7.98	7.92	7.96		8.05	0
(PH)	GUIDELINE														
NH3-N FIL.REAC	ACTUAL	20.87	23.46	37.81	24.16	14.72	21.48	15.07	21.63	16.77	20.21	19.02		21.38	0
KG /DAY (NNH3FR)	GUIDELINE	46.35	46.63	42.61	46.26	51.93	57.68	55.07	53.28	50.21	48.59	48.57		49.74	
PHENOLS UNF-REAC	ACTUAL	0.23	0.23	0.32	0.26	0.13	0.17	0.18	0.18	0.15	0.17	0.11		0.19	0
KG /DAY (PHNOL)	GUIDELINE	0.93	0.93	0.85	0.93	1.04	1.15	1.10	1.07	1.00	0.97	0.97		0.99	
RESIDUE PARTIC.	ACTUAL	82.45	75.83	73.89	88.07	113.29	133.18	119.42	162.84	94.03	85.04	256.07		116.74	11
KG /DAY (RSP)	GUIDELINE	69.5	69.9	63.9	69.4	77.9	86.5	82.6	79.9	75.3	72.9	72.9		74.6	
SOLVENT EXTRACT.	ACTUAL	6.05	7.22	6.57	10.46	6.11	7.18	25.78	17.82	10.75	15.37	8.52		11.08	0
KG /DAY (SOLEXT)	GUIDELINE	46.35	46.63	42.61	46.26	51.93	57.68	55.07	53.28	50.21	48.59	48.57		49.74	
SULPHIDE FIL.REAC	ACTUAL	0.76	0.91	0.76	0.94	1.01	0.58	0.64	1.33	0.78	0.46	1.1		0.84	
KG /DAY (SSIDFR)	GUIDELINE														
CARBON TOTAL	ACTUAL	89.43	206.45	151.56	103.23	130.22	144.68	172.91	156.81	97.38	100.67	94.41		120.65	
MG/L (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 OUT OF 55, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

REPORTED VALUES FOR SSIDUR NOT MONITORED BY MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Placer-Dome Inc. - Campbell Red Lake Mine
& PLANT LOCATION: Balmertown
Township Golden

IMIS NO.: 0043440007

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE:

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Lime precipitation of heavy metals and arsenic, primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-058-86-006, issued August 22, 1986, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and suspended solids.

EXCEEDANCES: Yes. Arsenic nine out of twelve months, copper two of twelve months, solids one of twelve months

REMEDIAL ACTIONS: Company installing pressure oxidation system which will reduce arsenic and metal concentrations in effluent.

COMMENTS: The effluent discharge point is shared with Dickenson Mines Ltd., thus the loadings and comments for the two are identical. Effluent discharges occurred on 241 days of the year (66%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.

Ten trout bioassays conducted in 1989 indicated the final effluent is usually not acutley lethal to the test fish. Seven samples collected had 96 hour LC50s which were greater than 100% or non-lethal . The remaining three results were 32.7, 69.8, and 83.8%

02/27/91

004344-00-0(7) PLACER-DOME INC. CAMPBELL RED LAKE MINE BALMERTOWN

REPORT DATE: 28 FEB 91 91

CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18700	4090	0	0	17210	96950	41030	11930	30000	69040	56510	27660	37312	
M3 /DAY (FTFLOW)	GUIDELINE														
ARSENIC UNF.TOT.	ACTUAL	0.5	0.55			0.57	0.51	0.52	0.53	0.71	1.08	1.14	1.22	0.73	9
MG/L (ASUT)	REQUIREMENT	0.5	0.5			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
CYANIDE AVAIL	ACTUAL	0.12	0.22			0.61	0.44	0.16	0.16	0.1	0.08	0.1	0.13	0.21	0
MG/L (CCNAUR)	REQUIREMENT	2	2			2	2	2	2	2	2	2	2	2	
COPPER UNF.TOT.	ACTUAL	0.52	0.51			1.5	1.19	0.74	0.51	0.41	0.37	0.37	0.43	0.66	2
MG/L (CUUT)	GUIDELINE	1	1			1	1	1	1	1	1	1	1	1	
NICKEL UNF.TOT.	ACTUAL	1	1			0.88	0.82	0.69	0.55	0.5	0.53	0.55	0.61	0.71	0
MG/L (NIUT)	GUIDELINE	1	1			1	1	1	1	1	1	1	1	1	
RESIDUE PARTIC.	ACTUAL	21	8			10	10	7	4	2	3	5	7	7.70	1
MG/L (RSP)	GUIDELINE	15	15			15	15	15	15	15	15	15	15	15	
ZINC UNF.TOT.	ACTUAL	0.21	0.19			0.29	0.19	0.13	0.09	0.08	0.08	0.08	0.11	0.15	0
MG/L (ZNUT)	GUIDELINE	1	1			1	1	1	1	1	1	1	1	1	

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 80% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Placer-Dome Inc. - Dona Lake Mine
& PLANT LOCATION: Dona Lake Area
District of Kenora

IMIS NO.: 043440205

MOE REGION: Northwest

DISTRICT: Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE:

RECEIVING WATERBODY: DIRECT: Kawinogans River
INDIRECT: Attawapiskat river

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): No. 4-123-86-886, issued June 22, 1988, limits discharge concentrations of arsenic, cyanide, copper, nickel, zinc, and lead.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Started IMIS monitoring program Sep. 1989

02/27/91

004344-02-0(5) PLACER DOME INC., DONA LAKE MINE PICKLE LAKE REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	0	0	0	0	0	0	0	0	25800	11100	15900		17600	
	REQUIREMENT														
ARSENIC UNF.TOT. UG/L (ASUT)	ACTUAL									2	2	2		2	0
	REQUIREMENT									500	500	500		500	
CYANIDE AVAIL MG/L AS HCN	ACTUAL									0.06	0.03	0.01		0.03	0
	REQUIREMENT									2	2	2		2	
COPPER UNF.TOT. UG/L (CUUT)	ACTUAL									5	3	9		5.7	0
	REQUIREMENT									1000	1000	1000		1000	
NICKEL UNF.TOT. UG/L (NIUT)	ACTUAL									3	4	2		3	0
	REQUIREMENT									1000	1000	1000		1000	
LEAD UNF.TOT. UG/L (PBUT)	ACTUAL									4	5	9		6	0
	REQUIREMENT									1000	1000	1000		1000	
PH (PH)	ACTUAL									7.43	7.65	7.45		7.51	0
	REQUIREMENT														
ZINC UNF.TOT. UG/L (ZNUT)	ACTUAL									8	10	10		9	0
	REQUIREMENT									1000	1000	1000		1000	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Placer - Dome Ltd.
& PLANT LOCATION: South Porcupine

IMIS NO.: 0001170000

MOE REGION: Northeast

DISTRICT: Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052, 0591

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: South Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered using CIP process.

EFFLUENT CHARACTERISTICS: Contains cyanide, copper, lead, nickel and zinc.

EFFLUENT TREATMENT: Natural degradation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Effluent criteria have been placed on the C. of A (Aug/88)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: The company has converted to the carbon-in-pulp milling process and instituted water recirculation within the mill in an attempt to improve effluent quality prior to discharge. The tailings dam was also raised, thereby increasing retention time.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

11/15/90

000117-00-0(0) PLACER DOME INC., DOME MINES SOUTH PORCUPINE REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ALK TOTAL	ACTUAL	131.8	167.25	97.25	59.5	65.6	68.25	64.75	72	81.5	83		0	81	
MG/L AS CACO3	GUIDELINE														
CYANIDE FREE	ACTUAL	0.03	0.03	0.03	0.01	0.02	0.02	0.02	0.01	0.01	0.02		0.06	0.024	0
MG/L (CCNFUR)	GUIDELINE	2	2	2	2	2	2	2	2	2	2		2	2	
COPPER UNF.TOT.	ACTUAL	0.38	0.31	0.54	0.17	0.37	0.42	0.41	0.31	0.3	0.2		0.36	0.34	0
MG/L AS CU	GUIDELINE	1	1	1	1	1	1	1	1	1	1		1	1	
IRON UNF.TOT.	ACTUAL	0.34	0.53	0.41	0.32	0.36	0.28	0.23	0.22	0.13	0.28		0.27	0.31	0
MG/L AS FE	GUIDELINE	1	1	1	1	1	1	1	1	1	1		1	1	
NICKEL UNF.TOT.	ACTUAL	0.2	0.17	0.23	0.07	0.24	0.33	0.31	0.28	0.21	0.17		0.26	0.225	0
MG/L AS NI	GUIDELINE	1	1	1	1	1	1	1	1	1	1		1	1	
LEAD UNF.TOT.	ACTUAL	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.03	0.1	0.1		0.1	0.09	0
MG/L AS PB	GUIDELINE	1	1	1	1	1	1	1	1	1	1		1	1	
PH	ACTUAL	7.38	7.71	7.28	7.26	7.54	7.81	7.96	7.6	7.63	7.8		7.57	7.59	0
(PH)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	9.94	6.93	11.9	8.78	10.44	10.1	7.73	8.64	7.58	13.92		7.45	9.4	0
MG/L (RSP)	GUIDELINE	15	15	15	15	15	15	15	15	15	15		15	15	
SULPHATE FIL.REAC	ACTUAL	112.61	173.03	117.96	38.6	132.34	154.95	114.67	205	164	180		166.05	142	
MG/L AS SO4	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.08	0.15	0.08	0.03	0.01	0.01	0.02	0.02	0.01	0.03		0.03	0.04	0
MG/L AS ZN	GUIDELINE	1	1	1	1	1	1	1	1	1	1		1	1	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Quebec and Ontario Paper Company Ltd.
& PLANT LOCATION: Allanburg
Thorold

IMIS NO.: 0000930008

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12.4 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Newsprint is made from debarked logs by three pulping processes (thermal-mechanical and chemi-mechanical) and from deinked newspaper pulp.

EFFLUENT CHARACTERISTICS: Residual organics produces a foam in the Old Welland Canal.

EFFLUENT TREATMENT: An oxygen high-rate system treats deinking effluent . A clarifier removes solids from high-solids wastewaters (note- cooling waters were separated from process wastewaters). An activated sludge system is used to remove substances causing biological oxygen demand.

DISCHARGE TYPE: continuous into a buried part of the Old Welland Canal

COMPANY LIMITS SET BY: CONTROL ORDER (Feb 5, 1987): Requirements for suspended solids loadings is 6.8 tonnes/day and BOD5 is 18.14 tonnes/day.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Foaming and assimilative capacity studies of "Old Welland Canal" commenced in 1990. Studies to be completed in 1991.

Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/13/91

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                                                                                                                  REPORT DATE: 25 FEB 91
000093-00-0(8)    Q AND O PAPER COMPANY LTD.                      THOROLD                                                 ANNUAL    TOTAL
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA                                                                     DEC    AVERAGE EXCEEDANCES
FLOW/LOADING         PARAMETERS          JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV
------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL           72049  67175  66225  67096  67152  66304  68054  67651  66896  67653  66557  66554   67447
M3 /DAY (FTFLOW)     GUIDELINE

BOD 5 DAY              ACTUAL             500    400    700    400   1200   2000   1600   1500   1500    900   1000    700    1033
KG /DAY (BOD5 )      REQUIREMENT        18140  18140  18140  18140  18140  18140  18140  18140  18140  18140  18140  18140   18140        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

                                                                                                                  REPORT DATE: 9 MAR 91
000093-00-0(8)    Q AND O PAPER COMPANY LTD.                      THOROLD                                                 ANNUAL    TOTAL
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA                                                                     DEC    AVERAGE EXCEEDANCES
FLOW/LOADING         PARAMETERS          JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV
------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.        ACTUAL            3100   2020   2650   2350   4900   6230   6530   4650   2940   2910   4060   1130    3623
KG /DAY (RSP )       GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
************************************************************************************************************************************************
GROSS DATA PROVIDED FOR COMPARISON PUROSES

                                                                                                                  REPORT DATE: 25 FEB 91
000093-00-0(8)    Q AND O PAPER COMPANY LTD.                      THOROLD                                                 ANNUAL    TOTAL
CONTROL POINT: 0200 DATA FOR 1989 - NET DATA                                                                       DEC    AVERAGE EXCEEDANCES
FLOW/LOADING         PARAMETERS          JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV
------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.        ACTUAL            2500   1600   2300   1500   4200   5300   5100   3800   1900   1700   2700    500    2758
KG /DAY (RSP )       GUIDELINE           6800   6800   6800   6800   6800   6800   6800   6800   6800   6800   6800   6800    6800        0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS      -
************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS   0 OUT OF  12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rexwood Products Ltd.
& PLANT LOCATION: New Liskeard

IMIS NO.: 0008501007

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR:

SIC CODE: 2593

RECEIVING WATERBODY: DIRECT: Lake Timiskaming
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures particle board.

EFFLUENT CHARACTERISTICS: Leachate from woodwaste landfill site contains BOD, suspended solids and phenols.

EFFLUENT TREATMENT: Nil - leachate generation minimized by capping orginal fill area.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Leachate quality is regulated by Objectives for the Control of Industrial Waste Discharges in Ontario.

EXCEEDANCES: Yes. Seven exceedances of RSP guideline, two of BOD5 and one of PHNOL.

REMEDIAL ACTIONS: Company has submitted application for a Certificate of Approval to establish new landfill site; diversion of storm water around existing site to avoid leachate generation will be a condition of approval.

COMMENTS: Study of receiving water in 1986 showed no significant impact of leachate on Lake Timiskaming. Sampling program is not scheduled for winter months.

One trout bioassay conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 5.6 %

04/05/91

008501-00-0(7) REXWOOD PRODUCTS LIMITED NEW LISKEARD REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	83.9		342	506.8	425.1	359.7	26.2		24.5	21.6			224	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	1.38		1.92	0.507	0.425		0.34		1.08	0.19			0.835	2
KG /DAY (BOD5)	GUIDELINE	1.26		5.13	7.6	6.38		0.393		0.368	0.324			3.06	
PHENOLS UNF-REAC	ACTUAL	0.009		0.00009	0.00001	0.00005	0.00012	0.00003		0.000006	0.000047			0.001	1
KG /DAY (PHNOL)	GUIDELINE	0.002		0.007	0.01	0.009	0.007	0.001		0.0005	0.00043			0.004	
RESIDUE PARTIC.	ACTUAL	3.02		1.36	44.1	32.3	8.2	1.88		1.52	0.86			11.7	7
KG /DAY (RSP)	GUIDELINE	1.26		5.13	7.6	6.38	5.4	0.393		0.368	0.324			3.36	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 57% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rio Algom Ltd. (Panel Mill)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001670207

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Quirke Lake to Serpent River
INDIRECT: 65 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore is mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains metal salts, ammonia compounds, and radioactive materials

EFFLUENT TREATMENT: Addition of barium chloride and lime to precipitate radium, adjust pH and precipitate metals. Precipitates removed followed by removal in settling pond.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: pH (1).

REMEDIAL ACTIONS: As pH exceedance was minor no action was required. Mine/Mill closed September 1990

COMMENTS:

One trout bioassay conducted in 1989, indicated the final effluent collected from station p14 to have been non-acutely lethal to test fish.

03/05/91

000167-02-0(7) RIO ALGOM LIMITED., PANEL ELLIOT LAKE REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	15284.2	13754.9	13106.9	14653.4	14895.4	13694.4	11439.4	8830.08	8009.28	6523.2	9884.16	10298.9	11698	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.14	6.56	6.93	7.02	7.94	8.18	6.8	6.35	8.68	9.08	7.75	8.13	7.55	1
(PH)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.14	0.25	0.3	0.29	0.34	0.12	0.14	0.08	0.06	0.059	0.09	0.14	0.167	
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
IRON UNF.TOT.	ACTUAL	2.75	15.12	5.63	26.4	32.76	4.52	4.2	3.36	0.88	0.26	0.79	0.6	8.11	
KG /DAY (FEUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
NICKEL UNF.TOT.	ACTUAL	0.93	0.81	0.92	0.88	0.58	0.59	0.72	0.61	0.26	0.18	0.84	1.02	0.695	
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
LEAD UNF.TOT.	ACTUAL	0.58	0.62	0.97	0.88	1.01	0.68	0.51	0.48	0.36	0.31	0.39	0.47	0.605	
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C
RADIUM 226 FIL.	ACTUAL	54	66	87	111	40	68	105	153	276	230	185	170	129	0
MBQ/L AS RA	GUIDELINE	740	740	740	740	740	740	740	740	740	740	740	740	740	
RADIUM 226	ACTUAL	174	476	421	393	103	114	256	290	504	327	332	384	315	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	30.6	68	71	40	20	9	18	8	4	6	23	36	27.8	0
KG /DAY (RSP)	GUIDELINE	229.3	206.3	196.6	219.8	223.4	205.4	171.6	132.5	120.1	97.8	148.3	154.5	175.5	
ZINC UNF.TOT.	ACTUAL	0.76	0.96	0.98	1.17	0.55	0.25	1.03	0.97	0.19	0.039	0.28	0.39	0.631	
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		S/C

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rio Algom Ltd. (Quirke Mill)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001670108

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 67 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore is mined, milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts, ammonia compounds, and radioactive materials.

EFFLUENT TREATMENT: Mill tailings are treated with lime to effect pH control and precipitate metals. Tailings effluent is treated with barium chloride to precipitate Radium 226 and lime addition to adjust pH before final discharge to river.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board (AECB).

EXCEEDANCES: Yes.

REMEDIAL ACTIONS: Fish kill September 1989 resulted in prosecution by A.E.C.B

COMMENTS: Mine/Mill closed September 1990

One trout bioassay conducted in 1989, indicated the final effluent collected from station q-28 to have been non-acutely lethal to test fish

03/05/91

000167-01-0(8) RIO ALGOM LIMITED

CONTROL POINT: 0100 DATA FOR 1989

ELLIOT LAKE

REPORT DATE: 28 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	15785.3	20001.6	19129	15776.6	14204.2	15621.1	15042.2	15094.1	16588.8	21928.3	19180.8	16312.3	17055	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.26	7.63	8.67	8.75	8.39	7.84	8.01	7.89	9.02	8.95	8.1	7.75	8.19	0
(PH)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.19		0.63	0.47	0.43	0.16	0.3	0.27	0.149	0.29	0.36	0.39	0.331	S/C
KG /DAY (CUUT)	GUIDELINE	S/C		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
IRON UNF.TOT.	ACTUAL	36.6	0	61.2	17.9	13.8	8.7	3.4	3.3	3.65	6	11	15.3	15.1	3
KG /DAY (FEUT)	GUIDELINE	15.8	20	19.1	15.8	14.2	15.6	15	15.1	16.6	21.9	19.2	16.3	17.1	
NICKEL UNF.TOT.	ACTUAL	1.22		1.47	0.16	0.43	1.2	1.07	1.25	0.63	0.7	0.88	1.06	0.923	S/C
KG /DAY (NIUT)	GUIDELINE	S/C		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
LEAD UNF.TOT.	ACTUAL	0.98	0	0.77	0.95	0.57	0.62	0.707	0.53	0.033	0.75	1.15	0.72	0.648	S/C
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RADIUM 226 FIL.	ACTUAL	42	86	517	44	42	62	99	89	80	111	97	140	117	0
MBQ/L AS RA	GUIDELINE	740	740	740	740	740	740	740	740	740	740	740	740	740	
RADIUM 226	ACTUAL	227	710	836	195	223	381	379	159	232	468	594	1152	463	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	268.3	109.5	222	77	57	63	67	71	78	91	158	214	123	1
KG /DAY (RSP)	GUIDELINE	236.8	300.0	286.9	236.6	213.1	234.3	225.6	226.4	248.8	328.9	287.7	244.7	256	
ZINC UNF.TOT.	ACTUAL	0.24		0.25	1.74	0.14	0.28	0.51	0.16	0.1	0.2	0.35	0.26	0.385	S/C
KG /DAY (ZNUT)	GUIDELINE	S/C		S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rio Algom Ltd. (Stanleigh Mill)
& PLANT LOCATION: Elliot Lake

IMIS NO.: 0001670306

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 057

RECEIVING WATERBODY: DIRECT: Serpent River (McCabe Lake)
INDIRECT: Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Uranium ore mined, milled and separated into tailings and concentrates.

EFFLUENT CHARACTERISTICS: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Effluent system consists of tailings area , sequential addition of barium chloride and lime, filtration plant to remove solids.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

03/05/91

000167-03-0(6) RIO ALGOM LIMITED., STANLEIGH ELLIOT LAKE REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	27466	30577	32789	31035	32625	33342	30404	15327	25350	23906	27190	20736	27562	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.72	8.42	8.05	7.9	7.8	8.03	7.78	7.6	8.02	8.14	7.66	7.8	7.91	0
(PH)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.25	0.4	0.46	0.62	0.65	0.33	0.12			0.43	0.35	0.25	0.386	S/C
KG /DAY (CUUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C			S/C	S/C	S/C		
NICKEL UNF.TOT.	ACTUAL	0.93	0.79	1.38	0.62	0.75	1.13	0.79			0.69	1.03	0.035	0.815	S/C
KG /DAY (NIUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C			S/C	S/C	S/C		
LEAD UNF.TOT.	ACTUAL	0.91	0.61	1.34	0.62	1.14	1.17	0.49			0.79	0.71	0.68	0.846	S/C
KG /DAY (PBUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C			S/C	S/C	S/C		
RADIUM 226 FIL.	ACTUAL	50	55	43		44	56	102	95	61	61	79	116	69.3	0
MBQ/L AS RA	GUIDELINE	740	740	740		740	740	740	740	740	740	740	740	740	
RADIUM 226	ACTUAL	252	217	294	243	274	213	410	1651	386	338	240	308	402	
MBQ/L AS RA	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	192.3	203	235	246	385	202	117	117	144	225	199	138	200	0
KG /DAY (RSP)	GUIDELINE	412.0	458.7	491.8	465.5	489.4	500.1	456.1	229.9	380.2	358.6	407.9	311.0	413.4	
ZINC UNF.TOT.	ACTUAL	0.69	0.95	0.85	0.93	1.04	1.2	0.58			0.91	1.06	0.73	0.894	S/C
KG /DAY (ZNUT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C			S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rohm and Haas Canada Ltd.
& PLANT LOCATION: Morrisburg

IMIS NO.: 0000580100

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Organic Chemical Manufacturing

SIC CODE: 3712, 3731

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Polymethylmethacrylate is manufactured using a cell casting polymerization process and an extrusion process. Oil additives are produced through polymerization of acrylic esters.

EFFLUENT CHARACTERISTICS: A single effluent , a combination of 2 process effluents, cooling water, storm water and effluent from a package sewage treatment plant, is discharged.

EFFLUENT TREATMENT: No effluent treatment. Process streams from the polymer casting and oil additives plant pass through an oily water separator.

DISCHARGE TYPE: The effluent is discharged to the St. Lawrence via a ditch.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario guidelines for direct discharge of effluent.

EXCEEDANCES: One exceedance of total phosphorus guideline.

REMEDIAL ACTIONS: Ministry has met with Rohm and Haas to explore the single exceedance of the phosphorus guideline

COMMENTS: Company is part of MISA Organic Chemical Sector which will lead to enforceable requirements.

MISA Toxicity Results .

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/13/91

000058-01-0(0) ROHM + HAAS MORRISBURG REPORT DATE: 29 JAN 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	545	549	582	636	662	730	670	649	769	695	687	441	635	
M3 /DAY (FTFLOW)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	132	189	59.4	165	150	198	107	118	55		84.5		126	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.03	0.04	0.02	0.016	0.02	0.9	0.05	0.05	0.08	0.32	0.32	0.22	0.17	1
KG /DAY (PPUT)	GUIDELINE	0.545	0.549	0.582	0.636	0.662	0.73	0.67	0.649	0.769	0.695	0.687	0.441	0.635	
RESIDUE FILTERED	ACTUAL	121	117	124	278	131	142	122	236	164				159	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	6	5	2.04	2.54	2	9.5	0.7	0.6	1	2.4	2.9	3.2	3.1	0
KG /DAY (RSP)	GUIDELINE	13.6	13.7	14.6	15.9	16.6	18.3	16.8	16.2	19.2	17.4	17.2	11.0	15.9	

NOTE: S/C -SEE COMMENT, O* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -, # - MISA DATA, EXCEPTIONS NOTED BELOW
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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

COD, RSF NOT MONITORED BY MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Rothsay, The Rendering Division of Maple Leaf Mills Ltd.
& PLANT LOCATION: Rothsay

IMIS NO.: 0026480202

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE:

RECEIVING WATERBODY: DIRECT: Moorefield Creek to Conestogo River to Grand River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: rendering

EFFLUENT CHARACTERISTICS: Contains phosphorus, hydrogen sulphide and dissolved organics.

EFFLUENT TREATMENT: Grease skimming, screening, flow equalization, flocculation, dissolved air flotation, aeration, sedimentation, and treated effluent polishing in holding lagoons by aeration and lime treatment for ammonia and phosphorus reduction.

DISCHARGE TYPE: seasonal; discharge permitted only in November - February period.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (Nov. 1988): Effluent limits are those of current C. of A. #4-079-84-887 issued Nov. 88. Limits vary with creek's flow and ammonia-nitrogen concentrations, and with the month. C. of A. allows spray irrigation on company's land of up to 91,000 cubic metres (20 million gallons) of treated effluent a year and requires existing irrigation system be maintained as a backup for drought flow years.

EXCEEDANCES: One exceedance each in Suspended Solids and Hydrogen Sulfide. Compliance record = 97%.

REMEDIAL ACTIONS: The facility is capable of consistently meeting criteria. However causes for the 2 exceedances and a plan of action is under discussion with the company.

COMMENTS: Reported loadings are based on measured flowrate.

Discharge is on a batch basis from a treated lagoon and quality is consistently within criteria except for the single exceedance during each discharge period. The exceedance in January is considered insignificant .

03/08/91

002648-02-0(2) ROTHSAY, THE RENDERING DIV OF MAPLE LEAF MILLS LTD CAMBRIDGE

CONTROL POINT: 0100 DATA FOR 1989

REPORT DATE: 25 FEB 91

FLOW/LOADING PARAMETERS		JAN 4	JAN 10	JAN 17	JAN 25	JAN 31	NOV 2	NOV 7	NOV 14	DEC 12	DEC 14	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL	5789	5789	3110	5443	2938	1382	2246	3197	1296	1123	3231	0
	REQUIREMENT	6344	17453	3110	5443	16416	1382	2246	3197	1296	1123	5801	
TOD KG /DAY (TOD)	ACTUAL	674	724	392	854	348	43.6	64.9	75.2	84.2	71	333.1	0
	REQUIREMENT	2707	8726	1284	2219	6350	220	447.6	605.4	656.6	545.6	2376.1	
NH3-N TOTAL KG /DAY (NNHTFR)	ACTUAL	84	83	42	74	35	4	5.6	6.7	12.6	11.6	35.9	0
	REQUIREMENT	92.7	251	43	74	197	4	5.6	6.7	12.6	11.6	69.8	
PH (PH)	ACTUAL	7.5	7.5	8	7.7	7.2	7.9	7.6	7.8	7.2	7	7.5	0
	REQUIREMENT												
PHOSPHOR UNF TOTAL KG /DAY (PPUT)	ACTUAL	0.52	0.43	0.36	0.27	0.26	0.25	0.22	0.19	0.19	0.07	0.28	0
	REQUIREMENT	6.39	17.45	3.11	5.44	16.42	1.38	2.25	3.2	1.3	1.12	5.81	
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL	60.2	69.5	34.2	52.8	267.4	4.15	15.7	32	18.1	12.8	56.7	1
	REQUIREMENT	95.9	261.8	46.7	81.6	246.2	20.73	33.7	47.9	19.4	16.8	87.1	
HYD. SULFIDE KG /DAY (SSIDA)	ACTUAL	0.12	0.12	0.06	0.11	0.06	0.028			0.104	0.022	0.06	1
	REQUIREMENT	0.185	0.47	0.093	0.163	0.351	0.062			0.07	0.06	0.15	

NOTE: S/C - SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 7.00 - 8.50

****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL WEEKLY LIMITS 2 TIMES OUT OF 70, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1989

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Shell Canada Ltd.
& PLANT LOCATION: Corunna

IMIS NO.: 0000510107

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651, 373

RECEIVING WATERBODY: DIRECT: Talfourd Creek
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products

EFFLUENT CHARACTERISTICS: Contains insoluble and dissolved compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Physical, chemical and biotreatment.

DISCHARGE TYPE: continuous through two outfalls, batch through one outfall for the storm pond.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): C. of A. #4-0048-87-006 for stormwater retention pond sets limits for pH, ammonia, solvent extractables, phenols and volatile suspended solids. C. of A. #4-0093-88-006 for biotreatment effluent limits for phenols and volatile suspended solids.

MOE OR FEDERAL GUIDELINES: Yes.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: Third Potentially oily water separator has been installed.

COMMENTS: This company has converted to MISA monitoring and 'GROSS' loadings and should not be compared to the 'NET' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

The data for thirteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish. Also all cooling water samples were determined to have been non- acutely lethal.

03/14/91

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA

REPORT DATE: 18 MAR 91

SUMMARY INCLUDES CONTROL POINTS 0200 0500 - GROSS LOADINGS

DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	134822	137617	130543	104084	125856	151832	169131	180162	180330	154743	118912	108187	141352	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.2	7.9	7.8	8.0	8.0	7.8	7.8	7.6	7.9	7.8	7.8	7.7	0
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	32.1	29.4	53.4	21.7	25.1	44.3	33.9	36.2	36.1	34.3	35.2	27.9	34.1	0
KG /DAY (NNHTFR)	GUIDELINE	1348	1376	1305	1041	1259	1518	1691	1802	1803	1547	1189	1082	1414	
PHENOLS UNF-REAC	ACTUAL	0.451	0.462	0.307	0.228	0.351	0.453	1.236	0.784	0.473	0.491	0.527	0.367	0.511	0
KG /DAY (PHNOL)	GUIDELINE	2.70	2.75	2.61	2.08	2.52	3.04	3.38	3.60	3.61	3.09	2.38	2.16	2.83	
RESIDUE PARTIC.	ACTUAL	1954	2769	980	3372	2130	3001	1517	2321	1765	2837	2512	1352	2209	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	355	524	219	245	384	413	324	354	349	431	282	193	339	0
KG /DAY (SOLEXT)	GUIDELINE	2022	2064	1958	1561	1888	2277	2537	2702	2705	2321	1784	1623	2120	
SULPHIDE UNF.REAC	ACTUAL	2.69	2.74	2.61	2.13	3.00	3.54	3.39	3.61	3.61	3.28	2.26	2.17	2.92	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	1401	3519	1467	1540	1240	2753	1817	2319	2888	3384	1792	1797	2160	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

REPORTED VALUES FOR SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

IN PREVIOUS YEARS THIS DATA SUMMARY TABLE REPORTED AS CONTROL POINTS 0200 AND 0300

000051-01-0(7)   SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA   REPORT DATE: 13 JAN 91
CONTROL POINT: 0200 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	10900	11516	12136	12223	13568	13703	15768	15828	16393	13690	12634	11086	13287	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.29	7.21	7.75	7.92	8.05	7.96	7.7	7.74	7.6	7.88	7.7	7.7	7.71	0
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	4.9	4.35	20.38	2.93	2.73	11.04	3.13	3.37	3.29	4.84	3.44	4.47	5.74	
KG /DAY (NHNTFR)	GUIDELINE	109.00	115.16	121.36	122.23	135.68	137.03	157.68	158.28	163.93	136.90	126.34	110.86	132.87	0
PHENOLS UNF-REAC	ACTUAL	0.09	0.09	0.05	0.04	0.06	0.08	0.09	0.06	0.06	0.11	0.14	0.11	0.08	
KG /DAY (PHNOL)	GUIDELINE	0.22	0.23	0.24	0.24	0.27	0.27	0.32	0.32	0.33	0.27	0.25	0.22	0.27	0
RESIDUE PARTIC.	ACTUAL	812.97	1270.02	299.92	1392.21	463.87	1178.14	418.29	524.12	497.85	545.1	894.59	336.55	719.47	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	51.75	74.14	33.09	35.75	41.64	38.59	45.3	26.73	46.85	40.98	35.13	24.41	41.20	
KG /DAY (SOLEXT)	GUIDELINE	163.50	172.74	182.04	183.35	203.52	205.55	236.52	237.42	245.90	205.35	189.51	166.29	199.31	0
SULPHIDE UNF.REAC	ACTUAL	0.22	0.23	0.24	0.25	0.76	0.46	0.31	0.32	0.33	0.29	0.26	0.22	0.32	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	245.38	317.69	188.13	214.02	305.15	1072.44	425.04	302.71	297.05	525.26	265.82	336.39	374.59	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

REPORTED VALUES FOR SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

REPORT DATE: 13 MAR 91

000051-01-0(7) SHELL CANADA PRODUCTS LIMITED, SARNIA MANUFACTURING CORUNNA

CONTROL POINT: 0500 DATA FOR 1989 - GROSS LOADINGS

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	123922	126101	118407	91861	112288	138129	153363	164334	163937	141053	106278	97101	128064	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.5	7.1	8	7.6	7.9	8	7.9	7.8	7.5	7.9	7.9	7.8	7.7	0
(PH)	GUIDELINE														
NH3-N TOTAL	ACTUAL	27.2	25.1	33.1	18.8	22.4	33.3	30.8	32.9	32.8	29.4	31.7	23.5	28.4	0
KG /DAY (NNHTFR)	GUIDELINE	1239	1261	1184	919	1123	1381	1534	1643	1639	1411	1063	971	1281	
PHENOLS UNF-REAC	ACTUAL	0.361	0.372	0.257	0.188	0.291	0.373	1.146	0.724	0.413	0.381	0.387	0.257	0.429	0
KG /DAY (PHNOL)	GUIDELINE	2.48	2.52	2.37	1.84	2.25	2.76	3.07	3.29	3.28	2.82	2.13	1.94	2.56	
RESIDUE PARTIC.	ACTUAL	1141	1499	680	1979	1666	1823	1099	1797	1267	2292	1617	1015	1490	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	303	450	186	209	342	374	279	327	302	390	247	168	298	0
KG /DAY (SOLEXT)	GUIDELINE	1859	1892	1776	1378	1684	2072	2300	2465	2459	2116	1594	1457	1921	
SULPHIDE UNF.REAC	ACTUAL	2.47	2.51	2.37	1.88	2.24	3.08	3.08	3.29	3.28	2.99	2.00	1.95	2.59	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	1156	3201	1279	1326	935	1681	1392	2016	2591	2859	1526	1461	1785	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

REPORTED VALUES FOR SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

IN PREVIOUS YEARS THIS DATA SUMMARY TABLE REPORTED AS CONTROL POINT 0300

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Sherman Mine
& PLANT LOCATION: Temagami

IMIS NO.: 0001540004

MOE REGION: Northeast

DISTRICT: North Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: **DIRECT:** Lake Temagami
INDIRECT: Sturgeon R. to Lake Nipissing

DESCRIPTION OF ACTIVITY: Open pit mining. Concentrating iron ore to pellets.

EFFLUENT CHARACTERISTICS: Contains suspended solids (iron) and dissolved inorganic salts.

EFFLUENT TREATMENT: Tailings impoundment.

DISCHARGE TYPE: Continuous from April to December. None from January to March due to freeze up.

COMPANY LIMITS SET BY: **MOE OR FEDERAL GUIDELINES:** Limits based on Guidelines for Environmental Control in the Ontario Mineral Industry. No effluent discharges during winter months due to freeze-up.

EXCEEDANCES: Aluminum (3),Arsenic (1), Copper (1).

REMEDIAL ACTIONS: Company permanently ceased operations in March 1990.

COMMENTS: Company ceased operations in March 1990. An inter-ministerial committee has negotiated a decommissioning plan with the company. Implementation to commence in 1991.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/05/91

000154-00-0(4)   SHERMAN MINE   TEMAGAMI   REPORT DATE: 28 FEB 91 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				2620.8	5896.8	3276	655.2		557.2	654.6			2277	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL				6.39	6.39	7.35	7.35		7.5	7.5			7.08	0
(PH)	GUIDELINE														
ALUMINUM UNF.TOT.	ACTUAL						3.3	0.66		0.05	58.9			15.7	3
KG /DAY (ALUT)	GUIDELINE						3.28	0.655		0.557	0.655			1.29	
ARSENIC UNF.TOT.	ACTUAL				0.03	0.06	0.03	0.01		0.003	3.27			0.567	1
KG /DAY (ASUT)	GUIDELINE				1.31	2.95	1.64	0.328		0.279	0.327			1.139	
COPPER UNF.TOT.	ACTUAL				0.03	0.06	0.03	0.01		0.01	6.55			1.12	1
KG /DAY (CUUT)	GUIDELINE				2.62	5.9	3.28	0.655		0.557	0.655			2.28	
IRON UNF.TOT.	ACTUAL				1.22	1.22	0.09	0.09		0.03	0.03			0.447	0
KG /DAY (FEUT)	GUIDELINE				2.62	5.9	3.28	0.655		0.557	0.655			2.28	
NICKEL UNF.TOT.	ACTUAL				0.05	0.12	0.03	0.01		0.01	0.01			0.038	0
KG /DAY (NIUT)	GUIDELINE				2.62	5.9	3.28	0.655		0.557	0.655			2.28	
LEAD UNF.TOT.	ACTUAL				0.03	0.06	0.03	0.01		0.02	0.02			0.028	0
KG /DAY (PBUT)	GUIDELINE				2.62	5.9	3.28	0.655		0.557	0.655			2.28	
RESIDUE FILTERED	ACTUAL				2283	5136	2208	4.41		401	471.3			1751	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL				9.17	20.6	16.4	3.28		2.79	3.3			9.26	0
KG /DAY (RSP)	GUIDELINE				39.3	88.5	49.1	9.83		8.36	9.82			34.2	
ZINC UNF.TOT.	ACTUAL				0.05	0.16	0.03	0.01		0.01	0.01			0.045	0
KG /DAY (ZNUT)	GUIDELINE				2.62	5.9	3.28	0.655		0.557	0.655			2.28	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 52, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Sifto Canada Inc.,
& PLANT LOCATION: Goderich

IMIS NO.: 0000140707

MOE REGION: Southwest

DISTRICT: Owen Sound

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 079

RECEIVING WATERBODY: DIRECT: Maitland River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Salt is mined and purified for use.

EFFLUENT CHARACTERISTICS: Contains dissolved chlorides and sulphates of sodium, calcium etc.

EFFLUENT TREATMENT: Settling basins.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: MOE guidelines.

EXCEEDANCES: Yes. suspended solids (RSP).

REMEDIAL ACTIONS: Company initiated improvements in 1988 to the sump return system which directs contaminants from the bleed-off of the evaporation process back into the brine cavern. All potential sources have been identified and directed to the sump. Improved housekeeping measures have also been implemented.

COMMENTS: In August 1989 the company undertook an evaluation of their analytical methods and found their RSP testing was not consistant with MOE approved methodology. Changes were made by Company in August 1989 to ensure that their RSP testing was consistent with MOE procedures and since that date RSP results have been in compliance . Confirmation of this will be confirmed by staff by a MISA audit in 1990.

11/16/90

000014-07-0(7)   SIFTO CANADA INC.   GODERICH   REPORT DATE: 6 MAR 91
CONTROL POINT: 0100 DATA FOR 1989
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9274	9070	9069	10274	9441	9410	8308	9047	11137	8000	9000	8612	9220	
M3 /DAY (FTFLOW)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	1865	3333	1315	4567	4297	1786	1639	2640	1920	1695	2157	2812	2502	
MG /DAY (CLIDUR)	GUIDELINE														
PH	ACTUAL	8	8	8	7.8	7.9	8.1	8	8	7.9	8	7.8	7.9	7.95	
(PH)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	3763	7737	3161	8643	8211	4821	3919	6776	4270	3652	4169	5868	5416	
MG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	436	1315	626	1572	1897	254	75	534	1220	30	72	86	676	
KG /DAY (RSP)	GUIDELINE	139	136	136	154	142	141	125	136	167	120	135	129	138	8
RESIDUE TOTAL	ACTUAL	3776	7882	3230	8786	8412	4308	3927	6834	4288	3656	4627	5878	5467	
MG /DAY (RST)	GUIDELINE														

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 33% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Spruce Falls Power and Paper Co., Ltd.
& PLANT LOCATION: Kapuskasing
IMIS NO.: 0001340009

MOE REGION: Northeast
DISTRICT: Timmins

INDUSTRIAL SECTOR: Pulp and Paper
SIC CODE: 031

RECEIVING WATERBODY: DIRECT: Kapuskasing R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts softwood (black spruce balsam fir, jack pine) logs and chips into newsprint by 3 different processes - stone groundwood, TMP and Magnefite (Magnefite has spent sulphite liquor recovery). Hydrosulphite is used to brighten the newspaper.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, wood and paper) and many dissolved organics.

EFFLUENT TREATMENT: Two clarifiers - one for the woodroom and one for total milll effluent (enclosed) are used to remove solids.

DISCHARGE TYPE: Continous outfall.

COMPANY LIMITS SET BY: CONTROL ORDER (EFFECTIVE DATE): The present Control Order requirements for suspended solids are 10 tonnes averaged over 30 consecutive days and 20 tonnes on any given day. The limits for BOD5 vary with flows and temperature (i.e. assimilative capacity) of the Kapuskasing River; the limits range from a low of 26 tonnes averaged over any 30 consecutive days (during summer months) to a high of 34 tonnes averaged over any 30 consecutive days (during the winter months). However, on any given day day the BOD5 discharge limit is 40 tonnes.

EXCEEDANCES: None. Company is in compliance

REMEDIAL ACTIONS: As requirement of the Control Order, the company has submitted a report dealing with final effluent. The company is proposing to install secondary treatment by a target day of 1994.

COMMENTS:

Three trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure were 10.0 %, 12.6 % and 24.5 %.

03/05/91

000134-00-0(9)   SPRUCE FALLS POWER AND PAPER COMPANY, LIMITED   KAPUSKASING   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	72900	72700	65300	70000	74000	78100	91600	92700	94300	86700	67400	67700	77783	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	31000	32000	25000	26000	23000	22000	21000	22000	24000	24000	24000	25000	24917	0
KG /DAY (BOD5)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	6800	6500	6600	6500	8800	6300	7300	7400	6500	5900	3800	6400	6567	0
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Stanchem Ltd. Cornwall

IMIS NO.: 0000391508

MOE REGION: Southeast

DISTRICT: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 3711

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Packages small quantities of industrial chemicals.

EFFLUENT CHARACTERISTICS: Effluent generated by the cleaning of containers and filling equipment.

EFFLUENT TREATMENT: Neutralization.

DISCHARGE TYPE: Continous through a submerged diffuser shared with Domtar.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Ontario guidelines for direct discharge of effluent.

EXCEEDANCES: Yes. RSP exceeded 12 months, BOD5 exceeded for ten months and PPUT for two months of the year.

REMEDIAL ACTIONS: Discussions have been ongoing with the company regarding Zero Discharge in conjunction with the St. Lawrence River Remedial Action Plan (RAP). Further meetings are to be held to develop an interium reduction proposal.

COMMENTS: Company is part of MISA Inorganic Chemical Sector under which legally enforceable requirements will be set.

Toxicity results obtained under the MISA program are:

The data for one trout bioassay submitted to MOE under the MISA Monitoring regulation in 1989, indicated the effluent from Stanchem to have been non-acutely lethal to test fish.

03/13/91

000039-15-0(8)   STANCHEM   CORNWALL   REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	46	65.9	154.9	84.9	77.3	187.6	164.3	56.3	41.1	57.5	90.2	54.6	90.1	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.8	6.8	7.1	7.2	6.5	7.1	6.7	7.3	6.5	6.7	7.5	7.2	6.95	0
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	5	0.65	71	18	1.5	12	10.9	3.6	1.1	2.4	2.4	4.3	11.6	10
KG /DAY (BOD5)	GUIDELINE	1.15	1.65	3.87	2.12	1.93	4.69	4.11	1.41	1.03	1.44	2.26	1.37	2.25	
CHEM. OX DEMAND	ACTUAL	10	24	13	16	49	48	21	11	8	28	12	10	20.8	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL	0.01	0.02	0.01	0.06	0.01	0.04	0.05	0.01	0.02	0.3	0.17	0.04	0.062	2
KG /DAY (PPUT)	GUIDELINE	0.046	0.066	0.155	0.085	0.077	0.188	0.164	0.056	0.041	0.058	0.09	0.055	0.09	
RESIDUE PARTIC.	ACTUAL	14	29	28	11	18	50	40	17	12	16	24	16	22.9	12
KG /DAY (RSP)	GUIDELINE	1.15	1.65	3.87	2.12	1.93	4.69	4.11	1.41	1.03	1.44	2.26	1.37	2.25	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

* * *

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 24 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Stanley Hardware Div. of Stanley Canada Inc., New Hamburg

IMIS NO.: 0001480003

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 301

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 203 km to Lake Erie

DESCRIPTION OF ACTIVITY: Makes tools, plates hardware, etc.

EFFLUENT CHARACTERISTICS: Contains heavy metals and cyanide.

EFFLUENT TREATMENT: Chrome reduction, cyanide destruction, neutralization, coagulation, sedimentation, and filtration. Sludge is dewatered by filter press. (New treatment plant).

DISCHARGE TYPE: five day continuous flow 7 am to 12:00 pm to a storm sewer

COMPANY LIMITS SET BY: CONTROL ORDER : Control Order issued in August 1988, amended June 1989, required company to meet C. of A limits by Aug. 1989.Company met all control requirements on due date.

CERTIFICATE OF APPROVAL (July, 1989): Certificate of Approval issued July 1989, for new treatment plant.

EXCEEDANCES: Yes. Flow, cyanide, copper, nickel, zinc, suspended solids, with old treatment plant. Since the August 1989 completion of the new treatment plant , one suspended solids exceedance occurred due to a sprinkler system pipe break causing hydraulic overload.

REMEDIAL ACTIONS: New wastewater treatment plant was completed in August 1989.

COMMENTS: New treatment plant effluent quality consistently meets criteria.

03/21/91

000148-00-0(3)   STANLEY HARDWARE
CONTROL POINT: 0100 DATA FOR 1989

NEW HAMBURG

REPORT DATE: 25 FEB 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	334	286	335	294	350	300	300	300	300	300	300	300	308	3
M3 /DAY (FTFLOW)	REQUIREMENT	304	304	304	304	304	304	304	304	304	304	304	304	304	
PH	ACTUAL	8.9	8.9	8.7	9	9	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.25	0
(PH)	REQUIREMENT														
CYANIDE AVAIL	ACTUAL	0.067	0.029	0.021	0.044	0.035	0.012	0.006			0.003	0.003		0.024	4
KG /DAY (CCNAUR)	REQUIREMENT	0.027	0.027	0.027	0.027	0.027	0.027	0.027			0.027	0.027		0.027	
CHROMIUM UNF.TOT.	ACTUAL	0.09	0.019	0.084	0.007	0.018	0.012	0.017	0.039	0.054	0.027	0.018	0.03	0.035	0
KG /DAY (CRUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
COPPER UNF.TOT.	ACTUAL	1.7	0.195	0.68	0.167	0.207	0.213	0.191	0.045	0.06	0.063	0.087	0.088	0.308	2
KG /DAY (CUUT)	REQUIREMENT	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
NICKEL UNF.TOT.	ACTUAL	0.272	0.192	0.123	0.136	0.095	0.141	0.06	0.024	0.042	0.033	0.033	0.048	0.1	2
KG /DAY (NIUT)	REQUIREMENT	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
RESIDUE PARTIC.	ACTUAL	8.4	7.47	8.14	6.13	6.13	3.9	6.75	0.44		3	6.9		5.73	7
KG /DAY (RSP)	REQUIREMENT	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	
ZINC UNF.TOT.	ACTUAL	0.362	0.237	0.215	0.361	0.242	0.357	0.214	0.069	0.039	0.048	0.06	0.05	0.188	7
KG /DAY (ZNUT)	REQUIREMENT	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 25 OUT OF 91, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: St. Marys Paper Inc.
& PLANT LOCATION: Sault Ste. Marie

IMIS NO.: 0000860304

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT:

DESCRIPTION OF ACTIVITY: Purchased Kraft pulp is added to the pulp made by the stone groundwood process to make paper specialties. Clay line was added Dec/84. A slush pulp multi-product mill (with no white-water return) was constructed in1989.

EFFLUENT CHARACTERISTICS: Contains suspended solids (bark, clay, wood) and soluble organic compounds like sugars.

EFFLUENT TREATMENT: Bull screen preceedes clarifier with scum collector on overflow. Underflow solids are dewatered and burned. An internal recovery system removes excess clays.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): May 17, 1989. The discharge of total suspended solids (RSP) averaged over any 30 consecutive working days will not exceed the allowable load levels based on the 1971 Federal Regulations calculated from the Production/Furnish Mix formula. At no time is the maximum daily limit of suspended solids to exceed twice the average allowable load level referred to in the previous sentence.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS: None is required.

COMMENTS: The company appeared in Court October 22, 1990 and pleaded guilty to 4 charges related to discharges in 1988

One trout bioassay conducted in 1989, indicated the clearwater sewer effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 57.9 %.

01/14/91

000086-03-0(4) ST. MARYS PAPER INC.
SAUIT STE. MARIE
REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	32995	32015	31195	31278	26720	29056	34329	38424	40690	38357	37961	33956	33915	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	3590	2950	1460	970	1780	1280	1550	1290	1040	570	1120	1650	1604	0
KG /DAY (BOD5)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	5710	4850	4480	4850	4510	4870	5380	6260	7170	5770	7800	5280	5578	0
KG /DAY (RSP)	REQUIREMENT	6720	7430	7830	8560	8450	9260	8790	9060	8910	9930	10500	7700	8595	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Stelco Inc., Hilton Works
& PLANT LOCATION: Hamilton

IMIS NO.: 0000950006

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron and steel production including coke making, ironmaking, steelmaking and rolling.

EFFLUENT CHARACTERISTICS: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery and ion exchange.

DISCHARGE TYPE: continuous through five shore outfalls

COMPANY LIMITS SET BY: MOE GUIDELINES: MOE guidelines set on total plant discharge.

EXCEEDANCES: None. Company has met its guideline objectives.

REMEDIAL ACTIONS:

COMMENTS: Data reported is NET data January to October and MISA GROSS data November and December. Use of flocculating agent started in April, 1989 to improve the efficiency of treatment in the East filtration plant.

Toxicity results obtained under the MISA program are:

The data for one of two trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the # 1 60 inch sewer effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the fish by the end of the four days exposure was 80.6 %. The other sample was determined to have been non-acutely lethal. The data for ten more trout bioassays conducted on samples collected from the North Outfall, East Side Filter, # 2 Rod Mill, 20 inch Mill, east Side filter Stage 1 and East Side Filter stage 2 were determined to have been non-acutely lethal to test fish.

03/08/91

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 17 MAR 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0601 0602 1100 1200
DATA FOR 1989 - NET DATA JANUARY TO OCTOBER; GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	996747	996747	1034577	1056075	1055429	1031912	1039790	999891	1000196	973467	917834	949381	1004337	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	5.92	7.04	7.14	7.51	7.53	7.29	7.71	7.53	7.38	7.38	7.52	7.2616		0
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	5.64	47.78	1.55	0*	0*	0*	6.63	0*	0*	0*	14	16		0
KG /DAY (CCNAUR)	GUIDELINE	212	212	212	212	212	212	212	212	212	212	212	212		
CHEM. OX DEMAND	ACTUAL	3423	4240	3605	959	2033	0*	767	0*	4787	0*			1662	0
KG /DAY (COD)	GUIDELINE	26400	26400	26400	26400	26400	26400	26400	26400	26400	26400			26400	
IRON UNF.TOT.	ACTUAL	1338	1921	1623	275	0*	0*	51	0*	164	163	298	480		0
KG /DAY (FEUT)	GUIDELINE	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550		
NH3-N TOTAL	ACTUAL	183	12.42	52.67	301.67	337.15	145.6	303.3	407.4	0*	244.9			198.8	0
KG /DAY (NNHTUR)	GUIDELINE	10550	10550	10550	10550	10550	10550	10550	10550	10550	10550			10550	
PHENOLS UNF-REAC	ACTUAL	12.47	17.03	21.74	6.22	1.30	0.13	0.56	0.99	0.28	2.68	19.55	21.25		0
KG /DAY (PHNOL)	GUIDELINE	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8		
RESIDUE PARTIC.	ACTUAL	6024	6169	5045	6167	1244	656	0*	0*	1868	0*	5529	6405		0
KG /DAY (RSP)	GUIDELINE	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900		
SOLVENT EXTRACT.	ACTUAL	1627	0*	161	1549	663	0*	22	1898	0*	1017	1606	1972		0
KG /DAY (SOLEXT)	GUIDELINE	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900	15900		
ZINC UNF.TOT.	ACTUAL	42.8	36.5	65.7	76.4	23.1	8.4	0*	19.8	14.2	0*	54.9	53.4		0
KG /DAY (ZNUT)	GUIDELINE	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055	1055		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 103, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

000095-00-0(6)   STELCO STEEL HILTON WORKS   HAMILTON   REPORT DATE: 17 MAR 91

CONTROL POINT: 0100 DATA FOR 1989 - WEST SIDE OPEN CUT - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	76306	76306	76306	76306	76306	76306	76306	76306	76306	76306	53018	44225	71692	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.61	7.4	7.45	7.8	7.75	7.8	7.7	7.8	8.2	8.45	8.2	8.2		0
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0.04	0*	0*	0*	0*	0*	0*	0*	0*	0	1.53	1.10		
KG /DAY (CCNAUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
CHEM. OX DEMAND	ACTUAL	613	488	317	668	61.05	221	0*	45.8	462	424			327	
KG /DAY (COD)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
NH3-N TOTAL	ACTUAL	23.6	0*	3.82	0*	0*	0*	15.3	34.3	22.9	22.9			7.33	
KG /DAY (NHNTUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	12.4	11.64	13.4	2.52	1.53	0.18	0.31	0*	0.59	1.98	4.07	4.06		
KG /DAY (PHNOL)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	1794	1843	1633	2888	900	981	305	599	649	110	508	230		
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	203	0*	38.2	107	11.4	11.4	107	359	68.7	198	92	121		
KG /DAY (SOLEXT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
ZINC UNF.TOT.	ACTUAL	6.04	0.76	3.82	13.35	4.58	14.12	0*	1.91	5.72	1.14	3.48	2.57		
KG /DAY (ZNUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

COD, NHNTUR NOT MONITORED UNDER MISA MONITORING REGULATION

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - NORTHWEST OUTFALL - NET DATA JANUARY TO OCTOBER, NET DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	266526	266525	266525	266526	266525	266526	266525	266526	266525	266525	229095	242470	261396	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.4	7.6	7.4	7.8	7.75	7.6	7.55	7.9	8	7.4	8.1	7.87		0
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	0*	39.1	0*	12	0*	0*	0	8.93	0*	0	1.47	3.27		
KG /DAY (CCNAUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
CHEM. OX DEMAND	ACTUAL	253	506	0*	0*	266	0*	560	0*	1546	3062			342	
KG /DAY (COD)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
NH3-N TOTAL	ACTUAL	0*	0*	26.6	13.3	26.6	0*	160	320	0*	0			36.7	
KG /DAY (NHNTUR)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
PHENOLS UNF-REAC	ACTUAL	0.8	0.09	6.3	2.53	0*	0*	0*	0.48	0*	0.44	3.822	4.327		
KG /DAY (PHNOL)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	800	347	1186	213	0*	546	0*	0*	107	414	1974	1604		
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	200	0*	0*	333	453	0*	0	1080	0*	344	329	544		
KG /DAY (SOLEXT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
ZINC UNF.TOT.	ACTUAL	8	2.67	18.7	17.3	12	0*	0*	10.7	0	0*	17.5	15.7		
KG /DAY (ZNUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50, # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

COD, NHNTUR NOT MONITORED UNDER MISA MONITORING REGULATION

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - OH-BOF - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	111189	111189	111189	111189	111189	111189	111189	111189	111189	111189			111188	
M3 /DAY (FTFLOW)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
RESIDUE PARTIC.	ACTUAL	50	5.56	284	795	979	345	189	0*	2079	317			490	
KG /DAY (RSP)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
SOLVENT EXTRACT.	ACTUAL	55.6	0*	0*	0*	100	0*	83.4	222	0*	183			0*	
KG /DAY (SOLEXT)	GUIDELINE	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -
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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

THIS CONTROL POINT NOT MONITORED UNDER MISA MONITORING REGULATION

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 17 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - NORTH OUTFALL - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	28887	28887	28887	28887	28887	28887	28887	28887	28887	28887	175174	255040	59924	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.7	7.3	7.65	7.65	7.65	7.6	8	7.95	7.9	7.92	8.01		
(PH)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	157	40.4	0*	41.9	86.7	76.6	60.7	89.6	152	646			131	
KG /DAY (COD)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C				
IRON UNF.TOT.	ACTUAL	2.89	129	21.7	20.2	36.1	8.67	0	0	18.8	0	50.3	52.0		
KG /DAY (FEUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	0*	116	0*	50.6	195	0*	0*	0*	0*	0*	956	1372		
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	18.8	7.22	0*	131	30.3	0*	30.3	57.8	0*	27.4	278	406		
KG /DAY (SOLEXT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW
****

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

COD NOT MONITORED UNDER MISA MONITORING REGULATION

000095-00-0(6)   STELCO STEEL HILTON WORKS   HAMILTON   REPORT DATE: 17 MAR 91
CONTROL POINT: 0601 DATA FOR 1989 - EAST SIDE FILTER PLANT - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW M3 /DAY (FTFLOW)	ACTUAL GUIDELINE	468601	468601	506431	527929	527283	503766	511644	471745	472050	445325	424133	377813	475443	
PH (PH)	ACTUAL GUIDELINE	7.67	7.34	7.14	7.35	7.54	7.28	6.32	7.8	8	7.8	7.744	7.792		
CYANIDE AVAIL KG /DAY (CCNAUR)	ACTUAL REQUIREMENT	18.5 S/C	9.71 S/C	7.51 S/C	0* S/C	0* S/C	0* S/C	8.92 S/C	0* S/C	0* S/C	0* S/C	10.67 S/C	11.49 S/C		
CHEM. OX DEMAND KG /DAY (COD)	ACTUAL REQUIREMENT	2400 S/C	3206 S/C	3407 S/C	1022 S/C	1619 S/C	0* S/C	177 S/C	0* S/C	2627 S/C	0* S/C			862	
IRON UNF.TOT. KG /DAY (FEUT)	ACTUAL REQUIREMENT	1097 S/C	1735 S/C	1431 S/C	162 S/C	0* S/C	0* S/C	5.77 S/C	0* S/C	57.1 S/C	26.8 S/C	129 S/C	358 S/C		
NH3-N TOTAL KG /DAY (NNHTUR)	ACTUAL REQUIREMENT	206 S/C	84.8 S/C	22.25 S/C	296 S/C	322 S/C	197 S/C	128 S/C	53.1 S/C	0* S/C	222 S/C			151	
PHENOLS UNF-REAC KG /DAY (PHNOL)	ACTUAL REQUIREMENT	0* S/C	5.3 S/C	2.04 S/C	1.17 S/C	0.82 S/C	0 S/C	0.52 S/C	0.6 S/C	0.57 S/C	0.26 S/C	11.7 S/C	12.9 S/C		
RESIDUE PARTIC. KG /DAY (RSP)	ACTUAL REQUIREMENT	3367 S/C	3501 S/C	1441 S/C	2053 S/C	0* S/C	0* S/C	0* S/C	0* S/C	0* S/C	0* S/C	2048 S/C	2834 S/C		
SOLVENT EXTRACT. KG /DAY (SOLEXT)	ACTUAL REQUIREMENT	1150 S/C	646 S/C	390 S/C	1028 S/C	0* S/C	0* S/C	0* S/C	57.8 S/C	0* S/C	286 S/C	793 S/C	784 S/C		
ZINC UNF.TOT. KG /DAY (ZNUT)	ACTUAL REQUIREMENT	28.8 S/C	33.1 S/C	43.2 S/C	45.7 S/C	6.49 S/C	0* S/C	2.97 S/C	7.21 S/C	8.43 S/C	0* S/C	33.924 S/C	35.13 S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

FOR COD, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION

000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 17 MAR 91

CONTROL POINT: 0604 DATA FOR 1989 - #1 60 INCH SEWER - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	45238	45238	45238	45238	45238	45238	45238	45238	45238	45234	30414	29905	43225	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	4.3	5.15	6.55	6.95	6.95	5.75	7.3	7.05	5.5	5.35	5.635	4.437		
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	238	56.6	170	92.8	143	267	45.2	81.4	88.2	136	118.8	69.12		
KG /DAY (FEUT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
RESIDUE PARTIC.	ACTUAL	90.5	61.1	357	156	285	762	43	280	20.4	185	272	215		
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		
SOLVENT EXTRACT.	ACTUAL	0	0*	0*	33.9	0*	0*	31.7	40.7	0*	11.3	57.3	50.8		
KG /DAY (SOLEXT)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

REPORTED VALUES FOR NOV, DEC FEUT ARE BASED ON ONE RESULT

```
                                                                                                                              REPORT DATE: 17 MAR 91
000095-00-0(6)    STELCO STEEL HILTON WORKS                               HAMILTON                                                  ANNUAL    TOTAL
CONTROL POINT: 1100 DATA FOR 1989 - #2 RODMILL - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER
FLOW/LOADING       PARAMETERS            JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV #   DEC # AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
                                                                                                                                       0*
RESIDUE PARTIC.    ACTUAL                0*
KG KG (RSP )       REQUIREMENT           S/C

RESIDUE PARTIC.    ACTUAL                0*      259     158     0*      125     62.7    156     0*      78.9    0*      148     172
KG /DAY (RSP )     REQUIREMENT           S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C

SOLVENT EXTRACT.   ACTUAL                0       0*      0       28.3    89      54.6    34.3    74.8    138     0*      42.2    48.5
KG /DAY (SOLEXT)   REQUIREMENT           S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW
********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.


                                                                                                                              REPORT DATE: 17 MAR 91
000095-00-0(6)    STELCO STEEL HILTON WORKS                               HAMILTON                                                  ANNUAL    TOTAL
CONTROL POINT: 1200 DATA FOR 1989 - 20 INCH MILL - NET DATA JANUARY TO OCTOBER, GROSS DATA NOVEMBER, DECEMBER
FLOW/LOADING       PARAMETERS            JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV #   DEC # AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.    ACTUAL                18.9    56.6    28.1    42.3    26.3    19.9    0.46    0*      4.39    7.22    54.8    54.9
KG /DAY (RSP )     REQUIREMENT           S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C     S/C

SOLVENT EXTRACT.   ACTUAL                0       2.3     0       6.96    0.92            5.72    5.95    0       0*      13.6    17.5
KG /DAY (SOLEXT)   REQUIREMENT           S/C     S/C     S/C     S/C     S/C             S/C     S/C     S/C     S/C     S/C     S/C

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW
********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.
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000095-00-0(6) STELCO STEEL HILTON WORKS HAMILTON REPORT DATE: 23 FEB 91
S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE DISCHARGED INTO: 02/004/ LAKE ONTARIO
INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0601 0602 1106 1200
DATA FOR 1989 - GROSS LOADINGS JAN TO OCT

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
CYANIDE AVAIL	ACTUAL	20.87	50.34	5.08	0	1.5	0.4	1.4	1.4	1.3	0			7.949	
KG /DAY (CCNAUR)	GUIDELINE														
CHEM. OX DEMAND	ACTUAL	12098	14084	5294	7392	9717	12743	15437	17998	14010	15575			12545	
KG /DAY (COD)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	1579	1909	1738	390	115	62	58	60	279	278			647	
KG /DAY (FEUT)	GUIDELINE														
NH3-N TOTAL	ACTUAL	1018	1346	1011	858	867	722	27	756	913	706			822	
KG /DAY (NNHTUR)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	15.85	19.48	24.39	8.87	3.95	2.78	3.21	3.64	2.95	5.33			9.06	
KG /DAY (PHNOL)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	5073	5073	5180	6611	5066	6916	8239	4900	4490	7282			5864	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	0	1555	1137	1162	3060	1289	571	690	3900	1158			1452	
KG /DAY (SOLEXT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	53.94	47.65	76.82	87.45	34.17	19.5	4.7	30.92	25.25	5			38.5	
KG /DAY (ZNUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS PAGE PROVIDED FOR COMPARISON PURPOSES

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Stelco Inc. Lake Erie Works
& PLANT LOCATION: Nanticoke

IMIS NO.: 0000950105

MOE REGION: West Central

DISTRICT: Haldimand-Norfold/Brant

INDUSTRIAL SECTOR: Iron and Steel

SIC CODE: 291

RECEIVING WATERBODY: DIRECT: Centre Creek
INDIRECT: 0.15 km to Lake Erie

DESCRIPTION OF ACTIVITY: Coke ovens with a by-product plant, blast furnace, basic oxygen furnace and a hot strip mill are used to make steel.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Final wastewater treatment consisting of equalization, clarification, alkaline breakpoint chlorination, filtration and final holding pond.

DISCHARGE TYPE: continuous through an open outfall.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (Dec.1987): Requirement for process effluent set by Certificate of Approval. Revised December/87.

MOE GUIDELINES: MOE guidelines for Sanitary Sewage Lagoon Discharges.

EXCEEDANCES: No exceedances. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Treatment and recirculation within plant is maximized. Best Practical Technology used to treat process wastewaters.

Toxicity results obtained under the MISA program are:

The data for two trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the # 4 Pond effluent to have been non-acutely lethal to test fish.

03/08/91

000095-01-0(5) STELCO STEEL LAKE ERIE WORKS HAMILTON REPORT DATE: 13 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - #4 POND DISCHARGE

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	31299	29685	32006	34195	35969	32726	29575	28497	30696	32328	27752	27820	31698	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8	7.9	7.9	8.3	8.7	8.6	8.5	8.5	8.4	8.3	8.2	8.387		0
(PH)	GUIDELINE														
CYANIDE AVAIL	ACTUAL	1.8	3	2.5	1.7	1.8	1.4	1	1	1.6	1.3	0.597	1.289	1.582	
KG /DAY (CCNAUR)	GUIDELINE														
CYANIDE FREE	ACTUAL	1.6	1.5	1.6	1.7	1.8	1.3	1.5	1.2	2.4	2.1	1.39	1.39	1.623	0
KG /DAY (CCNFUR)	REQUIREMENT	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	
CADMIUM UNF.TOT.	ACTUAL	0.16	0.15	0.16	0.17	0.18	0.16	0.15	0.17	0.15	0.19	0.353	0.115		
KG /DAY (CDU[illegible]	GUIDELINE														
CHLORINE FREE	ACTUAL	3.13	2.97	3.2	3.42	3.6	2.82	2.96	2.08	1.46	5.03	2.8	2.8	3.023	0
KG /DAY (CLFREE)	REQUIREMENT	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	
CHROMIUM UNF.TOT.	ACTUAL	0.3	0.4	0.6	0.9	0.8	0.4	0.3	0.6	0.9	0.6	0.391	0.406		0
KG /DAY (CRUT)	REQUIREMENT	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43		
COPPER UNF.TOT.	ACTUAL	0.4	0.3	0.3	0.9	0.5	0.5	0.04	0.5	0.9	1.1	0.665	0.546		0
KG /DAY (CUUT)	REQUIREMENT	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15		
IRON UNF.TOT.	ACTUAL	25.4	34.4	27.3	45.1	20.6	18	16.1	24.5	20.4	18.6	17.719	24.07		0
KG /DAY (FEUT)	REQUIREMENT	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55	56.55		
NH3-N TOTAL	ACTUAL	8.5	5.3	4.6	8.5	5.2	5	4.1	2.9	4.5	2.5	4.9	2.8	4.900	0
KG /DAY (NNHTUR)	REQUIREMENT	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	35.82	
LEAD UNF.TOT.	ACTUAL	2.1	4.1	4.6	5.3	5.4	1.8	2.7	4.1	4.8	6.7	3.161	0.204		0
KG /DAY (PBUT)	REQUIREMENT	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08	15.08		
PHENOLS UNF-REAC	ACTUAL	0.043	0.047	0.043	0.071	0.056	0.043	0.039	0.071	0.103	0.108	0.061	0.038		0
KG /DAY (PHNOL)	REQUIREMENT	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75		
PHOSPHOR UNF.TOT.	ACTUAL	7.82	5.19	6.4	11.97	26.98	14.27	3.94	13.31	7.32	7.39	3.67	2.40		0
KG /DAY (PPUT)	REQUIREMENT	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7		
RESIDUE PARTIC.	ACTUAL	286	282	228	365	396	148	310	347	203	180	210	260		0
KG /DAY (RSP)	REQUIREMENT	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5	565.5		
SOLVENT EXTRACT.	ACTUAL	87.6	69.3	120.0	91.2	71.9	81.9	63.9	71.2	30.8	59.1	45.1	30.7		0
KG /DAY (SOLEXT)	REQUIREMENT	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51	237.51		

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000095-01-0(5)    STELCO STEEL LAKE ERIE WORKS                     HAMILTON                                                                          REPORT DATE: 12 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - #4 POND DISCHARGE                                                                                        ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS              JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV #    DEC # AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------
ZINC UNF.TOT.        ACTUAL                 6.1      7.7      6.9      7.8      4.8      4.5      4.4      4.1      3.4      9.1     7.945    5.85    7.258
KG /DAY (ZNUT )   REQUIREMENT              22.62    22.62    22.62    22.62    22.62    22.62    22.62    22.62    22.62    22.62    22.62    22.62   22.62         0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50, # - MISS DATA, EXCEPTIONS NOTED BELOW
*******************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 156, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

REPORTED VALUES FOR CCNAUR, CCNFUR, CLFREE, NNHTUR NOT MONITORED UNDER MISA MONITORING REGULATION
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000095-01-0(5) STELCO STEEL LAKE ERIE WORKS HAMILTON REPORT DATE: 13 MAR 91

CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA - SEWAGE STATION

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL				3859	2765						3500	2753	3375	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL				34.7	13.8						29		25.8	
KG /DAY (BOD5)	GUIDELINE				96.4	69.2						87.5		84.4	0
PHOSPHOR UNF.TOT.	ACTUAL				2.3	1.93						0.68	0.519	1.81	
KG /DAY (PPUT)	GUIDELINE				3.86	2.77						3.5	2.753	4.29	0
RESIDUE PARTIC.	ACTUAL				89.1	43.7						87.5		73.42	
KG /DAY (RSP)	GUIDELINE				96.4	69.2						87.5		84.37	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS - , # - MISA DATA, EXCEPTIONS NOTED BELOW

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 10, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Stelco Page Hersey Works
& PLANT LOCATION: Welland

IMIS NO.: 0000950303

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating & finishing

SIC CODE: 292

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT:

DESCRIPTION OF ACTIVITY: Small diameter seamless pipe is made from steel billets.

EFFLUENT CHARACTERISTICS: Contains iron particles, Total suspended solids and oil and grease.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through a diffuser

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

03/08/91

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000095-03-0(3)    STELCO PAGE HERSHEY                             WELLAND                                         REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - PLANT OUTFALL - GROSS                                                                ANNUAL       TOTAL
FLOW/CONCENTRATION PARAMETERS              JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.       ACTUAL               3.3     1.5     4.6     5.1       3     2.7     3.1     1.1       2     1.7       2     2.7     2.73
MG/L (RSP )           GUIDELINE

SOLVENT EXTRACT.      ACTUAL                 0     1.1     4.3     2.1     2.3     1.2     2.9       0       0     1.5     2.9     1.8     1.68
MG/L (SOLEXT)         GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  9.50
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.
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000095-03-0(3)    STELCO PAGE HERSHEY                             WELLAND                                         REPORT DATE: 25 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - PLANT OUTFALL - NET                                                                  ANNUAL       TOTAL
FLOW/LOADING          PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL              8732    9075    9555    8966    8899    8530    9239   10416   10860    8072    9364   10400     9326
M3 /DAY (FTFLOW)      GUIDELINE

PH                    ACTUAL              7.87     7.7     7.7    7.79    7.78    7.74    7.63       8    7.81    7.48     7.4    7.67     7.71           0
(PH )                 GUIDELINE

IRON UNF.TOT.         ACTUAL                   0.00099  0.0017    4.48     4.9   0.009     9.2       0   10.85    0.32       0       0     2.71
KG /DAY (FEUT )       GUIDELINE                      -       -       -       -       -       -       -       -       -       -       -

RESIDUE PARTIC.       ACTUAL             0.005   0.002  0.0015    21.5    10.4       0       0       0       0       0       0       0     2.66           0
KG /DAY (RSP )        GUIDELINE            131     136     143     134     130     128     139     156     163     121     140     156      140

SOLVENT EXTRACT.      ACTUAL                 0       0   0.001    8.07     3.8       0       0       0       0     4.8    0.94       0     1.47           0
KG /DAY (SOLEXT)      GUIDELINE            131     136     143     134     130     128     139     156     163     121     140     156      140

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 - 9.50
***********************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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000095-03-0(3)    STELCO PAGE HERSHEY                             WELLAND                                         REPORT DATE: 25 FEB 91
CONTROL POINT: 0300 DATA FOR 1989 - PLANT OUTFALL - GROSS                                                                ANNUAL       TOTAL
FLOW/LOADING          PARAMETERS           JAN     FEB     MAR     APR     MAY     JUN     JUL     AUG     SEP     OCT     NOV     DEC  AVERAGE EXCEEDANCES
-----------------------------------------------------------------------------------------------------------------------------------------------------------
RESIDUE PARTIC.       ACTUAL              28.8    13.6      44    45.7    26.1      23    28.6    11.5    21.7    13.7    18.7    28.1     25.3
KG /DAY (RSP )        GUIDELINE

SOLVENT EXTRACT.      ACTUAL                 0      10    41.1    18.8      20    10.2    26.8       0       0    12.1    27.2    18.7     15.4
KG /DAY (SOLEXT)      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 - 9.50
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WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Stelco Welland Tube Works
& PLANT LOCATION: Welland

IMIS NO.: 0000950204

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Metal, Plastic Fabricating & Finishing

SIC CODE: 292

RECEIVING WATERBODY: DIRECT: Lyons Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Flat steel is made into very large diameter pipe.

EFFLUENT CHARACTERISTICS: Contains iron particles, Total suspnded solids and oil and grease

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: continuous through an open outfall

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: Company exceeded total suspended solids guidlines for one month (November 1989).

REMEDIAL ACTIONS: Company issued new C of A for construction of a new wastewater treatment system. Completion is anticipated in early 1991.

COMMENTS: Exceedance was marginal and is attributed to storm runoff conditions.

One trout bioassay conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

03/08/91

000095-02-0(4) STELCO WELLAND TUBES WELLAND REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989 - PLANT OUTFALL - WET
FLOW/CONCENTRATION PARAMETERS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	975	893	1259	772	338	1016	1448	1560	1574	4062	1371	1072	1370	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.26	7.27	7.58	6.87	6.78	7.7	7.9	7.18	7.13	7.13	7.38	7.11	7.27	
(PH)	GUIDELINE														
IRON UNF.TOT.	ACTUAL	2.44	0.45	0.76	0.62	0.34	0.71	0.43	1	0.94	2.44	0.55	0.21	0.908	
KG /DAY (FEUT)	GUIDELINE	-	-	-	-	-	-	-	-	-	-	-	-		
RESIDUE PARTIC.	ACTUAL	6.92	2.32	4.15	2.01	2	5.18	3.76	14.44	5.04	25.99	21.93	3.65	8.12	1
KG /DAY (RSP)	GUIDELINE	14.62	13.39	18.88	11.58	5.07	15.25	21.71	24.90	23.61	60.92	20.56	16.08	20.55	
SOLVENT EXTRACT.	ACTUAL	7.8	1.16	5.92	0.77	1.01	3.66	7.82	13.61	10.08	17.87	1.51	4.18	6.28	0
KG /DAY (SOLEXT)	GUIDELINE	14.62	13.39	18.88	11.58	5.07	15.25	21.71	24.90	23.61	60.92	20.56	16.08	20.55	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 26, FOR A TOTAL COMPLIANCE RECORD OF 96 IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION:	Stepan Canada Inc. (formerly Domtar Chemicals Group) Longford Mills	IMIS NO.: 0000140004
MOE REGION:	Central	DISTRICT: Barrie
INDUSTRIAL SECTOR:	Organic Chemical Manufacturing	SIC CODE: 3761
RECEIVING WATERBODY:	DIRECT: Lake St. John INDIRECT: Georgian Bay	

DESCRIPTION OF ACTIVITY: Produces detergents and detergent bases from ethylene oxide, fatty acids, ethylamines, etc.

EFFLUENT CHARACTERISTICS:

EFFLUENT TREATMENT: Activated sludge.

DISCHARGE TYPE: Continuous - treated wastewaters are joined by clean cooling water prior to discharge.

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: This company is subject to MISA, Organic Chemical Manuacturing sector.

The data for three trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the combined effluent to have been non-acutely lethal to test fish.

03/12/91

000014-00-0(4) STEPAN CANADA INC., LONGFORD MILLS LONGFORD MILLS REPORT DATE: 17 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT #	NOV #	DEC #	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL		1677	1908	2191	2262	2822	3044	2084	3082	2548	2222	2216	2367	
M3 /DAY (FTFLOW)	GUIDELINE														
NH3-N TOTAL	ACTUAL	0.15	0.4	0.4	0.2	0.5	0.5	0.3	0.7	0.4	0.4		0.5	0.405	
MG/L AS N (NNHTUR)	GUIDELINE	10	10	10	10	10	10	10	10	10	10		10	10	0
NO3-N UNF.REAC	ACTUAL	0	0	0		1.1	0	0	0	1.1	1.1		0	0.33	
MG/L AS N (NNO3UR)	GUIDELINE														
PH	ACTUAL	8.2	8.1	8	7.9	8	8.2	8.2	8.2	8.2	7.9	7.8	7.8	8.04	
(PH)	GUIDELINE														0
PHOSPHOR UNF.TOT.	ACTUAL	0.01	0.04	0.02	0.01	0.02	0.02	0.03	0.04	0.03	0.1	0.1	0.1	0.04	
MG/L AS P (PPUT)	GUIDELINE	1	1	1	1	1	1	1	1	1	1	1	1	1	0
RESIDUE FILTERED	ACTUAL	5	4	4	2	5	5	4	5	8	6	6	7	5.08	
MG/L (RSF)	GUIDELINE														
CARBON TOTAL	ACTUAL	5.7	7.1	8	6.9	7.5	8.3	6.1	6.1	7.3	9	8.3	8.4	7.39	
MG/L AS C (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50 , # - MISA DATA (EXCEPTIONS NOTED BELOW)

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

RSF, NNHTUR, NNO3UR NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

IMIS NO.: 0001740000

COMPANY NAME: Strathcona Paper Company
a division of Roman Corporation Limited

& PLANT LOCATION: Camden East Twp.

DISTRICT: Kingston

MOE REGION: Southeast

SIC CODE: 271

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Napanee River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT CHARACTERISTICS: Effluent contains suspended solids and biodegradable organics.

EFFLUENT TREATMENT: "Savealls" and a whitewater recycle system plus a "Krofta" clarifier have reduced the solids discharged to a system of seven sedimentation and aeration lagoons.

DISCHARGE TYPE: One continuous on-shore outfall from lagoon system (control point 0200).

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Permitted BOD loadings is a function of Napanee River flows as detailed on Certificate of Approval #4-024-86-876 dated May 28, 1987.

MOE OR FEDERAL GUIDELINES: Suspended solids guideline based on Federal Pulp and Paper Effluent Guidelines - based on an average monthly production of approximately. 170 tonnes/day and an allowable suspended solids (RSP) of 7.5 kg/tonne of production, the 1989 allowable was 1275 kg/day.

EXCEEDANCES: BOD5 exceeded once.

REMEDIAL ACTIONS: None.

COMMENTS: Additional aeration installed June 1990 to control odours has resulted in reduction of BOD5 loading.

11/26/90

000174-00-0(0)   STRATHCONA PAPER COMPANY   NAPANEE   REPORT DATE:15 MAR 91

CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4318	4182	3977	2792	2818	2769	3038	2295	2923	3269	2959	3129	3203	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	544	1089	601	318	250	134	145	101	39	93	115	251	307	
KG /DAY (BOD5)	GUIDELINE	613	613	613	613	204	204	204	204	204	279	502	613	405.5	1
CHEM. OX DEMAND	ACTUAL	0	0	0	0	0	0							0	
KG /DAY (COD)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	82	98	224	227	193	175	141	102	63	68	83	130	132.2	
KG /DAY (RSP)	REQUIREMENT	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C	S/C		0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Suncor Sunoco Group
& PLANT LOCATION: Sarnia

IMIS NO.: 0000490102

MOE REGION: Southwest

DISTRICT: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

SIC CODE: 3651

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT CHARACTERISTICS: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation before discharge. Process and storm water receive both primary and secondary treatment before discharge.

DISCHARGE TYPE: continuous at shore

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Yes

EXCEEDANCES: None. Company is in compliance

REMEDIAL ACTIONS: None.

COMMENTS: This company has converted to MISA monitoring and 'gross' loadings and should not be compared to the 'net' loadings of IMIS in previous years. The reported increase in loadings does not imply a decrease in effluent quality nor an increase in loading to the river. Rather it reflects a change in the method of calculation of the loadings.

Toxicity results obtained under the MISA program are:

The data for thirteen trout bioassays submitted to MOE under the MISA monitoring regulation in 1989, indicated the process effluent to have been non-acutely lethal to the test fish. Also all cooling water samples were determined to have been non- acutely lethal.

01/23/91

000049-01-0(2)   SUNCOR INC.   (SUNOCO DIVISION)   PO BOX 307 SARNIA   REPORT DATE: 18 MAR 91
S U M M A R Y   INCLUDES CONTROL POINTS 0300 0400 - GROSS LOADINGS
DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	92013	82855	82032	78735	100065	105509	111741	116434	97043	90522	81248	99088	94774	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.77	7.05	7.32	7.3	7.07	7.53	7.8	7.63	7.36	7.44	7.34	7.4	7.33	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	37.5	33.9	15.8	41.7	6.7	4.6	5.4	11.6	37.9	11.8	2.5	10.3	18.3	
KG /DAY (NNHTFR)	GUIDELINE	920	829	820	787	1001	1055	1117	1164	970	905	812	991	948	0
PHENOLS UNF-REAC	ACTUAL	0.246	1.143	0.267	0.08	0.151	0.146	0.237	0.312	0.137	0.176	0.171	0.611	0.306	
KG /DAY (PHNOL)	GUIDELINE	1.840	1.657	1.641	1.575	2.001	2.110	2.235	2.329	1.941	1.810	1.625	1.982	1.895	0
RESIDUE PARTIC.	ACTUAL	309	242	226	339	608	159	151	432	757	429	400	617	389	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	30.2	44.8	78.5	41.8	45.0	48.6	46.0	49.5	67.8	71.0	69.9	43.1	53.0	
KG /DAY (SOLEXT)	GUIDELINE	1380	1243	1230	1181	1501	1583	1676	1747	1456	1358	1219	1486	1422	0
SULPHIDE UNF.REAC	ACTUAL	0.96	0.86	0.93	2.17	1.10	2.18	1.22	1.20	1.16	1.97	0.88	2.91	1.46	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	406	360	192	218	396	497	322	298	398	279	190	325	323	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

NNHTFR, SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

THIS DATA SUMMARY PREVIOUSLY REPORTED AS CONTROL POINT 0200

000049-01-0(2) SUNCOR INC. (SUNOCO DIVISION) PO BOX 307 SARNIA
CONTROL POINT: 0300 DATA FOR 1989 - GROSS LOADINGS - PROCESS EFFLUENT
REPORT DATE: 18 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	9191	8175	8519	9450	8725	9364	8461	9602	9483	9362	8298	8894	9775	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	6.77	7.05	7.32	7.3	7.07	7.53	7.8	7.63	7.36	7.44	7.34	7.4	8.00	
(PH)	GUIDELINE														0
NH3-N TOTAL	ACTUAL	37.47	33.91	15.78	41.68	6.71	4.56	5.36	11.64	37.92	11.8	2.54	10.3	19.97	
KG /DAY (NNHTFR)	GUIDELINE	91.91	81.75	85.19	94.5	87.25	93.64	84.61	96.02	94.83	93.62	82.98	88.94	97.75	0
PHENOLS UNF-REAC	ACTUAL	0.08	0.06	0.12	0.08	0.06	0.05	0.03	0.04	0.05	0.05	0.05	0.07	0.07	
KG /DAY (PHNOL)	GUIDELINE	0.18	0.16	0.17	0.19	0.17	0.19	0.17	0.19	0.19	0.19	0.17	0.18	0.20	0
RESIDUE PARTIC.	ACTUAL	61.02	55.53	78.9	61.67	59.75	62.69	47.53	59.73	95.7	104.69	63.3	76	75.14	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	13.56	7.43	12.3	13.8	8.67	10.19	4.71	6.72	19.91	13.29	6.72	7	11.30	
KG /DAY (SOLEXT)	GUIDELINE	137.87	122.63	127.79	141.75	130.88	140.46	126.92	144.03	142.25	140.43	124.47	133.41	146.62	0
SULPHIDE UNF.REAC	ACTUAL	0.13	0.11	0.19	0.17	0.19	0.26	0.19	0.13	0.26	0.16	0.15	0.2	0.19	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	66.21	147.32	59.49	78.52	66.75	131.95	105.19	74.53	120.33	78.14	56.62	127	101.10	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

NNHTFR, SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

000049-01-0(2) SUNCOR INC. (SUNOCO DIVISION) PO BOX 307 SARNIA REPORT DATE: 18 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS LOADINGS - COOLING WATER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	82822	74680	73513	69285	91340	96145	103280	106832	87560	81160	72950	90194	85813	
M3 /DAY (FTFLOW)	GUIDELINE														
PHENOLS UNF-REAC	ACTUAL	0.166	1.083	0.147	0	0.091	0.096	0.207	0.272	0.087	0.126	0.121	0.541	0.245	
KG /DAY (PHNOL)	GUIDELINE	1.656	1.494	1.470	1.386	1.827	1.923	2.066	2.137	1.751	1.623	1.459	1.804	1.716	0
RESIDUE PARTIC.	ACTUAL	248	187	147	277	548	96	103	372	662	325	337	541	320	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	16.7	37.3	66.2	28.0	36.4	38.5	41.3	42.7	47.9	57.7	63.1	36.1	42.6	
KG /DAY (SOLEXT)	GUIDELINE	1242	1120	1103	1039	1370	1442	1549	1602	1313	1217	1094	1353	1287	0
SULPHIDE UNF.REAC	ACTUAL	0.83	0.75	0.74	2.00	0.91	1.92	1.03	1.07	0.90	1.81	0.73	2.71	15.39	
KG /DAY (SSIDUR)	GUIDELINE														
CARBON TOTAL	ACTUAL	340	213	132	139	329	365	217	224	277	201	133	198	231	
KG /DAY (TOC)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1988.

MISA MONITORING REGULATION DATA JAN TO NOV, MISA GAP MONITORING DATA FOR DEC

SSIDUR NOT MONITORED UNDER MISA MONITORING REGULATION

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Teck-Corona Operating Corporation.
& PLANT LOCATION: David Bell Mine
Marathon

IMIS NO.: 0031750003

MOE REGION: Northwest

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT CHARACTERISTICS: Contains heavy metals, suspended solids, pH, cyanide

EFFLUENT TREATMENT: Approved treatment utilizing sulphur dioxide/air process and a metal precipitation stage utilizing precipitation with ferric sulphate. Disposal area decants to Lim Lake. Mill site sedimentation pond effluent to Cedar Creek.

DISCHARGE TYPE: continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): June 1985. Requirements set out under 'Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981'

EXCEEDANCES: None. In compliance with all reported data.

REMEDIAL ACTIONS:

COMMENTS: One of four trout bioassays conducted in 1989, indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50 % of the test fish by the end of the four days exposure was 28.3 %. The other three samples were determined to have been non-acutely lethal to test fish.

02/27/91

003175-00-0(3)   TECK-CORONA OPERATING CORP., DAVID BELL MINE   MARATHON   REPORT DATE: 1 MAY 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL	0.0014	0.00125	0.00225	0.0068	0.0016	0.00143	0.0016	0.00625	0.00125	0.0018	0.00725	0.006	0.003	
MG/L (ASUT)	REQUIREMENT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
CYANIDE AVAIL	ACTUAL	1.99	0.8	0.84	0.89	0.5	0.06	0.02	0.02	0.03	0.04	0.16	0.32	0.473	
MG/L (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL	0.706	0.63	0.832	0.538	0.154	0.007	0.002	0.002	0.001	0.002	0.005	0.026	0.242	
MG/L (CUUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
IRON UNF.TOT.	ACTUAL	0.366	0.12	0.112	0.168	0.49	0.317	0.06	0.127	0.375	0.1	0.12	0.347	0.225	
MG/L (FEUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0
MERCURY UNF.TOT.	ACTUAL	92	85	50	56	50	50	52	50	127.5	50	52.5	50	63.8	
UG/L (HGUT)	GUIDELINE														
MOLYBDEN UNF.TOT.	ACTUAL	0.156	0.18	0.207	0.067	0.071	0.145	0.216	0.317	0.265	0.119	0.073	0.112	0.161	
MG/L (MOUT)	GUIDELINE														
PH	ACTUAL	7.03	7.14	7.24	7.25	7.45	7.41	7.43	7.6	7.36	7.29	6.9	6.85	7.25	
(PH)	REQUIREMENT														0
RESIDUE PARTIC.	ACTUAL	6.4	7.48	5.08	7.2	8.34	3.9	6.66	6	10.68	7.38	1	1.4	5.96	
MG/L (RSP)	GUIDELINE														
ANTIMONY UNF.TOT.	ACTUAL	0.53	0.477	0.605	0.287	0.358	0.677	0.782	0.407	0.65	0.394	0.24	0.372	0.482	
MG/L (SBUT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL	0.006	0.006	0.092	0.005	0.006	0.005	0.005	0.005	0.009	0.005	0.006	0.005	0.013	
MG/L (ZNUT)	REQUIREMENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Tend-R-Fresh, Div. of Maple Leaf Mills Poultry Products
(previously reported as Sherwood Poultry Farms)
& PLANT LOCATION: Dundas/Flamborough Twp.

IMIS NO.: 0093240000

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1010

RECEIVING WATERBODY: DIRECT: Spencer Creek to Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Chicken processing plant.

EFFLUENT CHARACTERISTICS: Animal fats, manure, blood (ammonia, suspended solids, phosphorus, BOD, solvent extractables)

EFFLUENT TREATMENT: Current: extended aeration, chemical treatment filters, Dissolved air flotation completed in September 1990.

DISCHARGE TYPE: Seasonal discharge - discharge for months of November and December only in 1988.

COMPANY LIMITS SET BY: MOE GUIDELINES: MOE guidelines. Seasonal discharge in proportion to flow in receiving stream.

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Installation of dissolved air flotation unit completed in September , 1990. Treatment of lagoon with alum prior to seasonal discharge.

03/21/91

009324-00-0(0) TEND-R-FRESH DIVISION DUNDAS/FLAMBOROUGH REPORT DATE: 11 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL											1000	1000	1000	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL											5	11	8	
KG /DAY (BOD5)	GUIDELINE											15	15	15	0
NH3-N TOTAL	ACTUAL											13.6	21	17.3	
KG /DAY (NNHTFR)	GUIDELINE											25	25	25	0
PHOSPHOR UNF.TOT.	ACTUAL											0.92	0.62	0.77	
KG /DAY (PPUT)	GUIDELINE											1	1	1	0
RESIDUE PARTIC.	ACTUAL											14.8	14	14.4	
KG /DAY (RSP)	GUIDELINE											15	15	15	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 8, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Tend-R-Fresh Div. Maple Leaf Mills Poultry Products Inc., Petersburg

IMIS NO.: 0001490002

MOE REGION: West Central

DISTRICT: Cambridge

INDUSTRIAL SECTOR: Food and Beverage

SIC CODE: 1012

RECEIVING WATERBODY: DIRECT: Alder Creek to Nith River to Grand River
INDIRECT: 195 km to Lake Erie

DESCRIPTION OF ACTIVITY: Birds are slaughtered, processed, readied for retail sale.

EFFLUENT CHARACTERISTICS: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Screening, aeration, phosphorus removal, sedimentation and chlorination.

DISCHARGE TYPE: seven day continuous flow through an open outfall

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL: Monthly requirements are those of C. of A issued May, 1988..

EXCEEDANCES: Yes, ammonium-nitrogen (4), oil & grease. (1) compliance record = 89%

REMEDIAL ACTIONS: Interim measures achieved effluent compliance since January 1989 for all parameters except ammonium-nitrogen. No further action being taken since plant closed in 1989.

COMMENTS: Plant was closed in July 1989.

03/21/91

000149-00-0(2) TEND-R-FRESH DIVISION PETERSBURG REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1462	1131	1103	1012	927	890	1050						1082	
M3 /DAY (FTFLOW)	REQUIREMENT	2272	2272	2272	2272	2272	2272	2272						2272	0
PH	ACTUAL	7.53	7.44	7.25	7.08	7.12	7.67	7.6						7.38	
(PH)	REQUIREMENT														0
BOD 5 DAY	ACTUAL	15.0	9.32	9.97	8.08	8.4	5.34	6.3						8.91	
KG /DAY (BOD5)	REQUIREMENT	32	32	32	32	32	32	32						32	0
NH3-N TOTAL	ACTUAL	45.1	41.1	41.2	34.7	1.33	0.75	1.05						23.6	
KG /DAY (NNHTFR)	REQUIREMENT	8	8	8	8	8	8	8						8	4
PHOSPHOR UNF.TOT.	ACTUAL	0.6	0.33	0.39	0.33	0.42	0.11	0.19						0.339	
KG /DAY (PPUT)	REQUIREMENT	1.6	1.6	1.6	1.6	1.6	1.6	1.6						1.6	0
RESIDUE PARTIC.	ACTUAL	28.3	14.0	11.1	17.7	20.0	4.32	3.15						14.1	
KG /DAY (RSP)	REQUIREMENT	32	32	32	32	32	32	32						32	0
SOLVENT EXTRACT.	ACTUAL	3.39	9.92	4.93	5.73	10.8	7.51	66.14						15.5	
KG /DAY (SOLEXT)	REQUIREMENT	24	24	24	24	24	24	24						24	1

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 OUT OF 49, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: The Algoma Steel Corp. Ltd.
& PLANT LOCATION: (Algoma Ore Div.)
Wawa

IMIS NO.: 0000040105

MOE REGION: Northeast

DISTRICT: Sault Ste. Marie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

SIC CODE: 058

RECEIVING WATERBODY: DIRECT: Magpie R.
INDIRECT: 10 km to Lake Superior

DESCRIPTION OF ACTIVITY: Sulphur bearing iron ore is roasted to make iron sinter.

EFFLUENT CHARACTERISTICS: Contains suspended solids and dissolved metal sulphates.

EFFLUENT TREATMENT: Tailings pond system (3 ponds) in series.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Guidelines for the Environmental Control in Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: Yes. pH, RSP (suspended solids)

REMEDIAL ACTIONS: The company has undertaken an upgrading program of the tailings management system which was completed in 1991.

COMMENTS:

03/13/91

000004-01-0(5) THE ALGOMA STEEL CORPORATION,LIMITED WAWA REPORT DATE: 12 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ALK TOTAL	ACTUAL					28								28	
MG/L AS CACO3	GUIDELINE					100								100	0
COPPER UNF.TOT.	ACTUAL					0.01			0.01	0.01				0.01	
MG/L AS CU	GUIDELINE					S/C			S/C	S/C					S/C
IRON UNF.TOT.	ACTUAL					0.05			0.05	0.05				0.05	
MG/L AS FE	GUIDELINE					S/C			S/C	S/C					S/C
NICKEL UNF.TOT.	ACTUAL								0.02	0.02				0.02	
MG/L AS NI	GUIDELINE								S/C	S/C					S/C
LEAD UNF.TOT.	ACTUAL								0.05	0.05				0.05	
MG/L AS PB	GUIDELINE								S/C	S/C					S/C
PH	ACTUAL	11.5	11.3	11.3	9.2	11.1		7.3	7	8.7		8.5		9.54	
(PH)	GUIDELINE														4
RESIDUE FILTERED	ACTUAL				372			812	773	836		728		704	
MG/L (RSF)	GUIDELINE				1000			1000	1000	1000		1000		1000	0
RESIDUE PARTIC.	ACTUAL	150	443	27	372	7		1	1	4		5.5		112	
MG/L (RSP)	GUIDELINE	15	15	15	15	15		15	15	15		15		15	4
SULPHATE UNF.REAC	ACTUAL	215	215	225	260				455	430		375		311	
MG/L AS SO4	GUIDELINE	750	750	750	750				750	750		750		750	0
ZINC UNF.TOT.	ACTUAL					0.01								0.01	
MG/L AS ZN	GUIDELINE					S/C									S/C

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 OUT OF 28, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: The Canadian Salt Company Ltd.
& PLANT LOCATION: Windsor

IMIS NO.: 0001040005

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Industrial Minerals

SIC CODE: 0793

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Salt is mined and prepared for use.

EFFLUENT CHARACTERISTICS: Contains dissolved salt (chlorides).

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: continuous

COMPANY LIMITS SET BY: MOE OR FEDERAL GUIDELINES: Objectives for the Control of Industrial Waste Discharge in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance

REMEDIAL ACTIONS:

COMMENTS: Compliance is assessed against total plant discharge.

02/11/91

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000104-00-0(5)    THE CANADIAN SALT COMPANY LIMITED              WINDSOR                                                                      REPORT DATE: 25 FEB 91
S U M M A R Y  FOR  EMIS. TYPE: 16   FINAL DISCHARGE - NET DATA   DISCHARGED INTO: 02/003/       LAKE ERIE
                    INCLUDES CONTROL POINTS:  0100 0200
                    DATA FOR 1989                                                                                                              ANNUAL     TOTAL
FLOW/LOADING        PARAMETERS          JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC  AVERAGE EXCEEDANCES
--------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                  ACTUAL          20111    20111    20111    20111    20111    20111    20111    20111    20111    20111    20111    20111    20111
M3 /DAY (FTFLOW)    GUIDELINE

PH                    ACTUAL            7.6      7.6     7.75     8.05     8.05      7.9     8.05      8.1      7.9      8.1      7.8      7.6      7.9
(PH )               GUIDELINE                                                                                                                              0

ALK TOTAL             ACTUAL              0       18        6        4        0        2        0        0        6        0        0        0        3
KG /DAY (ALKT )     GUIDELINE

CHLORIDE UNF.REAC     ACTUAL          29544    38045    18959    15170    18016    10208     7161    13595     8353    14681     7795     8355    15824
KG /DAY (CLIDUR)    GUIDELINE

RESIDUE FILTERED      ACTUAL          47162    61192    32123    27669    30940    16251    12708    27074    14561    25850    14666    13798    27000
KG /DAY (RSF )      GUIDELINE

RESIDUE PARTIC.       ACTUAL             59      270      174      179      140       10       25      122       27       87       34       38     97.1
KG /DAY (RSP )      GUIDELINE           302      302      302      302      302      302      302      302      302      302      302      302      302      0

RESIDUE TOTAL         ACTUAL          47221    61462    32297    27848    31080    16261    12733    27196    14588    25937    14700    13819    27095
KG /DAY (RST )      GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS  5.50 -  10.6
*********************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.
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000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	2044	2044	2044	2044	2044	2044	2044	2044	2044	2044	2044	2044	2044	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.5	7.7	8	8.1	7.9	8.1	8	7.9	8.1	7.7	7.6	7.85	
(PH)	GUIDELINE														0
ALK TOTAL	ACTUAL	0	0	6	4	0	2	0	0	6	0	0	0	1.5	
KG /DAY (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	25787	35010	14551	11755	13770	5637	5517	11048	4270	10146	3350	4724	12130	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	40694	55572	24209	20604	23460	8663	9348	22666	7497	18045	5867	7404	20336	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	59	90	84	89	32	10	25	104	27	69	16	20	52.1	
KG /DAY (RSP)	GUIDELINE	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	6
RESIDUE TOTAL	ACTUAL	40753	55662	24293	20693	23492	8673	9373	22770	7524	18114	5883	7424	20388	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1989.

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 25 FEB 91
CONTROL POINT: 0200 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	18067	18067	18067	18067	18067	18067	18067	18067	18067	18067	18067	18067	18067	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.6	7.7	7.8	8.1	8	7.9	8	8.2	7.9	8.1	7.9	7.6	7.9	
(PH)	GUIDELINE														0
ALK TOTAL	ACTUAL	0	18	0	0	0	0	0	0	0	0	0	0	1.5	
KG /DAY (ALKT)	GUIDELINE														
CHLORIDE UNF.REAC	ACTUAL	3757	3035	4408	3415	4246	4571	1644	2547	4083	4535	4445	3631	3693	
KG /DAY (CLIDUR)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	6468	5620	7914	7065	7480	7588	3360	4408	7064	7805	8799	6394	6664	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	180	90	90	108	0	0	18	0	18	18	18	45.0	
KG /DAY (RSP)	GUIDELINE	271	271	271	271	271	271	271	271	271	271	271	271	271	0
RESIDUE TOTAL	ACTUAL	6468	5800	8004	7155	7588	7588	3360	4426	7064	7823	8817	6395	6707	
KG /DAY (RST)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: & PLANT LOCATION: Trent Valley Paperboard Mills
A Division of Paperboard Industries Corporation
Trenton

IMIS NO.: 0001750009

MOE REGION: Southeast

DISTRICT: Kingston

INDUSTRIAL SECTOR: Pulp and Paper Mill

SIC CODE: 271

RECEIVING WATERBODY: **DIRECT:** Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT CHARACTERISTICS: Suspended solids and BOD5 concentrations vary depending on wastepaper.

EFFLUENT TREATMENT: "Saveall" screens and two "Krofta" clarifiers remove solids.

DISCHARGE TYPE: Continous.

COMPANY LIMITS SET BY: **CERTIFICATE OF APPROVAL (EFFECTIVE DATE):** Effluent objective for suspended solids set out in Certificate of Approval #4-001-82-006 dated February 3rd, 1982 is 140 kg/day

EXCEEDANCES: Yes. Twelve exceedances of Certificate of Approval requirement for RSP.

REMEDIAL ACTIONS: See comments.

COMMENTS: Review of Suspended solids effluent objective of 140 kg/day set out in Certificate of Approval is continuing. Receiving water studies have not identified an effluent impact with respect to BOD. Company submission demonstrates that existing effluent quality is equivalent to that from a mill employing optimized 'Best available Technology'.

Based on monthly toxicity testing during 1989 using either rainbow trout or daphnia magna, the mill effluent was non-toxic in 11 of 12 months.

11/26/90

000175-00-0(9) TRENT VALLEY PAPERBOARD MILLS DIVISION TRENTON REPORT DATE: 28 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	4154	4520	4674	4396	4062	4081	3916	4282	4405	3452	3790	3389	4093	
M3 /DAY (FTFLOW)	GUIDELINE														
BOD 5 DAY	ACTUAL	2509	2721	2921	2246	1304	2724	2147	2427	2272	1295	1348	1384	2108	
KG /DAY (BOD5)	GUIDELINE	-	-	-	-	-	-	-	-	-	-	-	-		
CHEM. OX DEMAND	ACTUAL	4648	4945	4959	4836	4549	4630	4801	3744	6504	5778	3725	4440	4797	
KG /DAY (COD)	GUIDELINE														
PHOSPHOR UNF.TOT.	ACTUAL		0.86	0.94	0.88	0.41	0.3	0.5	0.4	0.5	0.4	0.2	0.1	0.499	
KG /DAY (PPUT)	GUIDELINE														
RESIDUE FILTERED	ACTUAL	3942	4841	4767	4774	4541	5807	3913	4755	4387	4787	4216	3445	4515	
KG /DAY (RSF)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	577.4	570	580	453	439	423	499	424	521	496	515	560	505	
KG /DAY (RSP)	REQUIREMENT	140	140	140	140	140	140	140	140	140	140	140	140	140	12

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Valeo Engine Cooling, Ltd.
(previously reported as Blackstone Industrial ProductsLtd.)
& PLANT LOCATION: Stratford

IMIS NO.: 0001850007

MOE REGION: Southwest

DISTRICT: London

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 325

RECEIVING WATERBODY: DIRECT: Avon River (via Burritt Drain)
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacture of automotive radiators and heater cores.

EFFLUENT CHARACTERISTICS: Contains dissolved metals including copper, zinc and nickel.

EFFLUENT TREATMENT: pH adjustment and filtration

DISCHARGE TYPE: Both Batch and continuous operations.

COMPANY LIMITS SET BY: MOE GUIDELINES: 'Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)'

EXCEEDANCES: Yes. (1) pH and (3) zinc.

REMEDIAL ACTIONS: Ministry staff met with company officials to determine what measures must be taken to reduce effluent parameter concentrations to levels, which would meet current effluent discharge criteria. In March,1990 the company sumitted an action plan, which included an in-house Investigative at source reduction programme. Operational modifications are being put into place and will continue though 1991, looking for a full year of compliance in 1992.

COMMENTS:

03/21/91

000185-00-0(7) VALEO ENGINE COOLING, LIMITED STRATFORD REPORT DATE: 25 FEB 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	975	936	926	1083	1101	1001	836	829	920	792	725	692	901	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	9.2	8.4	8.4	8.2	8.3	8.3	8.2	8	8.2	8	7.8	8.3	8.28	1
(PH)	REQUIREMENT														
CHROMIUM UNF.TOT.	ACTUAL	0.02	0.01	0.01	0	0	0	0	0	0	0	0.01	0.01	0.005	0
KG /DAY (CRUT)	GUIDELINE	0.975	0.936	0.926	1.08	1.1	1	0.836	0.829	0.92	0.792	0.725	0.692	0.901	
COPPER UNF.TOT.	ACTUAL	0.3	0.01	0.14	0.79	0.54	0.15	0	0.12	0.13	0.09	0.12	0.13	0.21	0
KG /DAY (CUUT)	GUIDELINE	0.975	0.936	0.926	1.08	1.1	1	0.836	0.829	0.92	0.792	0.725	0.692	0.901	
LEAD UNF.TOT.	ACTUAL	0.1	0.11	0.08	0.18	0.13	0.08	0	0.07	0.26	0.09	0.05	0.2	0.113	0
KG /DAY (PBUT)	REQUIREMENT	0.975	0.936	0.926	1.08	1.1	1	0.836	0.829	0.92	0.792	0.725	0.692	0.901	
RESIDUE PARTIC.	ACTUAL	2.35	3.14	3.57	3.54	3.41	0.08	0.02	2.93	3.01	7.75	8.3	4.4	3.54	0
KG /DAY (RSP)	GUIDELINE	14.6	14	13.9	16.2	16.5	15	12.5	12.4	13.8	11.9	10.9	10.4	13.5	
ZINC UNF.TOT.	ACTUAL	0.89	1.56	0.56	1.04	0.91	0.7	0.01	0.41	0.45	1.01	2.17	0.57	0.857	3
KG /DAY (ZNUT)	GUIDELINE	0.975	0.936	0.926	1.08	1.1	1	0.836	0.829	0.92	0.792	0.725	0.692	0.901	

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 6.50 - 8.50

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Washington Mills Ltd.
& PLANT LOCATION: Niagara Falls

IMIS NO.: 0001950005

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland R.
INDIRECT: 11 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: Contains dissolved organic compounds and organic processing compounds

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: Continuous

COMPANY LIMITS SET BY: MOE GUIDELINES: Objectives for the Control Wastewater Discharges in Ontario

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS:

03/08/91

000195-00-0(5) WASHINGTON MILLS LTD. NIAGARA FALLS REPORT DATE: 26 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	21.85	0	0	0	0	0	0	0	0	0	0	0	1.82	
KG /DAY (RSP)	GUIDELINE	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	0
SOLVENT EXTRACT.	ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0	
KG /DAY (SOLEXT)	GUIDELINE	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Washington Mills Ltd.
& PLANT LOCATION: (previously reported as Sohio)
Niagara Falls

IMIS NO.: 0001660000

MOE REGION: West Central

DISTRICT: Welland

INDUSTRIAL SECTOR: Inorganic Chemicals

SIC CODE: 357

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT CHARACTERISTICS: There are two discharges, both to Welland River; results are composites of all discharges.

EFFLUENT TREATMENT: Process wastewater treatment consists of oil-water separation.

DISCHARGE TYPE: continuous through an outfall

COMPANY LIMITS SET BY: MOE GUIDELINES: Objective for the Control of Industrial Waste Discharges in Ontario (Provincial)

EXCEEDANCES: None. Company is in compliance.

REMEDIAL ACTIONS:

COMMENTS: Discharge water is from non-contact cooling water only.

Toxicity results obtained under the MISA program are:

The data for three trout bioassays submitted to MOE under the MISA Monitoring regulation in 1989, indicated that the Queen Lagoon, Old Lagoon, and Final effluents to have been non-acutely lethal to test fish.

03/26/91

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000166-00-0(0)    WASHINGTON MILLS ELECTRO MINERALS CORP.            NIAGARA FALLS                                                        REPORT DATE: 26 MAR 91
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - GROSS DATA  DISCHARGED INTO: 02/004/5130   TWELVE MILE CR.
                    INCLUDES CONTROL POINTS:  0100 0200
                    DATA FOR 1989                                                                                                          ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS              JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC    AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL             27666    27666    27666    27666    27666    27666    27666    27666    27666    27666    27666    17987    26859
M3 /DAY (FTFLOW)    GUIDELINE

PH                     ACTUAL               8.1      8.1      8.0      8.0      8.2      7.7      8.0      7.9      8.2      8.1      8.1      7.3      8.0
(PH )               GUIDELINE                                                                                                                              0

BOD 5 DAY              ACTUAL             263.7    25.35    27.56     22.2    25.58     11.8    18.23    25.81        0        0    24.76    26.05     39.3
KG /DAY (BOD5 )     GUIDELINE               415      415      415      415      415      415      415      415      415      415      415      270      403          0

PHOSPHOR UNF.TOT.      ACTUAL              0.78    0.162    0.299     0.37    0.058    0.069     0.36      0**    0.289    0.047     1.39      0**    0.319
KG /DAY (PPUT )     GUIDELINE

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS 5.5 - 9.5
*****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

** BELOW DETECTION LIMIT


000166-00-0(0)    WASHINGTON MILLS ELECTRO MINERALS CORP.            NIAGARA FALLS                                                        REPORT DATE: 19 MAR 91
S U M M A R Y  FOR  EMIS. TYPE: 04   FINAL DISCHARGE - NET DATA    DISCHARGED INTO: 02/004/5130   TWELVE MILE CR.
                    INCLUDES CONTROL POINTS:  0300 0400
                    DATA FOR 1989                                                                                                          ANNUAL    TOTAL
FLOW/LOADING        PARAMETERS              JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC    AVERAGE EXCEEDANCES
---------------------------------------------------------------------------------------------------------------------------------------------------------------------
FLOW                   ACTUAL             27666    27666    27666    27666    27666    27666    27666    27666    27666    27666    27666    27666    27666
M3 /DAY (FTFLOW)    GUIDELINE

RESIDUE PARTIC.        ACTUAL               0**     24.9      166       12      0**      0**      0**      5.1      0**      0**     14.6      0**     18.6
KG /DAY (RSP )      GUIDELINE               415      415      415      415      415      415      415      415      415      415      415      270      403          0

SOLVENT EXTRACT.       ACTUAL              7.48    17.68      1.4      0**       18      0**      0**      0**      0**     13.8     17.5      0**      6.3
KG /DAY (SOLEXT)    GUIDELINE               415      415      415      415      415      415      415      415      415      415      415      270      403          0

NOTE: S/C -SEE COMMENT,  0* INDICATES INTAKE EXCEEDED DISCHARGE,  PH-LIMITS       -
*****************************************************************************************************************************************************************
THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

** BELOW DETECTION LIMIT
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000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS
CONTROL POINT: 0100 DATA FOR 1989 - GROSS DATA - DISCHARGE TO PELL CREEK
REPORT DATE: 26 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	4154	13026	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	8.18	8.02	7.95	7.97	8.24	7.7	7.95	7.92	8.21	8.02	8.13	7.3	7.97	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	193.7	16.6	19.4	15.2	18	8.3	12.4	19.4	0	0	16.6	4.15	27	0
KG /DAY (BOD5)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	62	195	
PHOSPHOR UNF.TOT.	ACTUAL	0.55	0.069	0.235	0.318	0**	0.069	0.19	0**	0.26	0**	1.02	0**	0.226	0
KG /DAY (PPUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

** BELOW DETECTION LIMIT

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS
CONTROL POINT: 0200 DATA FOR 1989 - GROSS DATA - DISCHARGE TO WELLAND RIVER
REPORT DATE: 26 MAR 91

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	7.99	8.12	7.96	8.1	8.15	7.74	7.97	7.94	8.2	8.15	8.15	7.37	7.99	
(PH)	GUIDELINE														
BOD 5 DAY	ACTUAL	70	8.75	8.16	7	7.58	3.5	5.83	6.41	**	**	8.16	21.9	14.7	0
KG /DAY (BOD5)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	207	207	
PHOSPHOR UNF.TOT.	ACTUAL	0.23	0.093	0.064	0.052	0.058	**	0.17	**	0.029	0.047	0.37	**	0.124	0
KG /DAY (PPUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5 - 9.5

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

** BELOW DETECTION LIMIT

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 26 MAR 91
CONTROL POINT: 0100 DATA FOR 1989 - NET DATA - DISCHARGE TO PEEL CREEK

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0	24.9	166	12	0*	0*	0*	2.77	0*	0*	0*	0*	17	
KG /DAY (RSP)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	62.3	207	0
SOLVENT EXTRACT.	ACTUAL	6.9	13.6	1.4	0*	18	0*	0*	0*	0*	13.8	0*	0*	4.48	
KG /DAY (SOLEXT)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	62.3	195	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1989.

** BELOW DETECTION LIMIT

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 26 MAR 91
CONTROL POINT: 0200 DATA FOR 1989 - NET DATA - DISCHARGE TO WELLAND RIVER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13833	13026	
M3 /DAY (FTFLOW)	GUIDELINE														
RESIDUE PARTIC.	ACTUAL	0**	0**	0**	0**	0**	0**	0**	2.33	0**	0**	14.6	0**	1.41	
KG /DAY (RSP)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	207	207	0
SOLVENT EXTRACT.	ACTUAL	0.58	4.08	0**	0**	0**	0**	0**	0**	0**	0**	17.5	0**	1.85	
KG /DAY (SOLEXT)	GUIDELINE	207	207	207	207	207	207	207	207	207	207	207	207	207	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

** BELOW DETECTION LIMIT

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 26 MAR 91
CONTROL POINT: 0300 DATA FOR 1989 - GROSS DATA - DISCHARGE TO PELL CREEK

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL	199	99.6	285	40.1	224	701	0**	29	83	44.3	103.7	71	171	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	4.57	53.95	6.92	**	17.98	**	**	20.75	**	13.83	27.67	**	20.8	
KG /DAY (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

** BELOW DETECTION LIMIT

000166-00-0(0) WASHINGTON MILLS ELECTRO MINERALS CORP. NIAGARA FALLS REPORT DATE: 26 MAR 91
CONTROL POINT: 0400 DATA FOR 1989 - GROSS DATA - DISCHARGE TO WELLAND RIVER

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
RESIDUE PARTIC.	ACTUAL	199	74	118.9	27.7	224	701	**	31.8	83	44.3	246.7	236.5	181	
KG /DAY (RSP)	GUIDELINE														
SOLVENT EXTRACT.	ACTUAL	9.68	40.12	5.53	**	**	**	**	20.75	**	41.5	27.67	**	20.8	
KG /DAY (SOLEXT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

GROSS DATA PRESENTED FOR COMPARISON PURPOSES ONLY

** BELOW DETECTION LIMIT

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Wickes Manufacturing Co. Ltd.
& PLANT LOCATION: Bumper Division - Windsor Plant

IMIS NO.: 0001060003

MOE REGION: Southwest

DISTRICT: Windsor

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

SIC CODE: 304

RECEIVING WATERBODY: DIRECT: Little R.
INDIRECT: 3.3 km to Detroit River

DESCRIPTION OF ACTIVITY: Steel parts for the automobile industry are plated.

EFFLUENT CHARACTERISTICS: Contains dissolved metals like nickel, zinc and chromium.

EFFLUENT TREATMENT: Chemical precipitation and sedimentation, reduction of water useage.

DISCHARGE TYPE: Continuous five days a week

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): Issued May 1988. Effective date May 12, 1989.

MOE OR FEDERAL GUIDELINES: Objective for the Control of Industrial Waste Discharges in Ontario

EXCEEDANCES: Based on effective date of C. of A. criteria there was one exceedance of suspended solids; and five exceedances based on guideline criteria. There were also four exceedances of the nickel guideline criteria.

REMEDIAL ACTIONS: Construction of a new building to house the wastewater treatment works and installation of treatment plant equipment have been completed. Start-up date for the new works was May 12, 1989. A new sewer was constructed by the company in July 1988 to provide access to the nearest City trunk sewer. The municipal sewage treatment plant expansion is behind schedule but will be the receiver of the pre-treated effluent.

COMMENTS: Treated effluent is still being discharged to receiving waterbody. Windsor's Little River Pollution Control Plant expansion behind schedule, but will be the receiver of the treated effluent. The plant permantantly ceased operations in September 1990.

03/21/91

000106-00-0(3) WICKES MANUFACTURING COMPANY LTD. WINDSOR REPORT DATE: 20 MAR 91
CONTROL POINT: 0100 DATA FOR 1989

FLOW/LOADING	PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
FLOW	ACTUAL	843	874	897	933	933	929	920	752	766	820	793	747	851	
M3 /DAY (FTFLOW)	GUIDELINE														
PH	ACTUAL	10.2	9.9	10	9.9	9.8	9.4	10.2	9.2	8.6	8.5	9	9.1	9.5	
(PH)	GUIDELINE														0
CHROMIUM UNF.TOT.	ACTUAL	0.66	0.84	0.69	0.82	0.39	0.28	0.16	0.14	0.14	0.17	0.2	0.12	0.38	
KG /DAY (CRUT)	GUIDELINE	0.843	0.874	0.897	0.933	0.933	0.929	0.92	0.752	0.766	0.82	0.793	0.747	0.851	0
CHROMIUM +6	ACTUAL	0.28	0.38	0.18	0.21	0.13	0.046	0.046	0.037	0.038	0.07	0.06	0.02	0.12	
KG /DAY (CR6UR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL* *	0.12	0.09	0.07	0.12	0.13	0.08	0.07	0.045	0.038	0.06	0.06	0.04	0.08	
KG /DAY (CUUT)	REQUIREMENT	0.843	0.874	0.897	0.933	0.933	0.929	0.92	0.752	0.766	0.82	0.793	0.747	0.851	0
IRON UNF.TOT.	ACTUAL* *	0.33	0.26	0.37	0.28	0.205	0.22	0.25	0.135	0.09	0.16	0.17	0.16	0.22	
KG /DAY (FEUT)	REQUIREMENT	14.3	14.9	15.2	15.9	15.9	15.8	15.6	12.8	13	13.9	13.5	12.7	14.5	0
NICKEL UNF.TOT.	ACTUAL* *	1.26	1.3	1.32	1.3	0.9	0.68	0.48	0.45	0.3	0.49	0.59	0.43	0.79	
KG /DAY (NIUT)	REQUIREMENT	0.843	0.874	0.897	0.933	0.933	0.929	0.92	0.752	0.766	0.82	0.793	0.747	0.851	4
RESIDUE FILTERED	ACTUAL	2848	3465	3154	3487	3110	2756	2908	2036	1823	1839	1997	2580	2667	
KG /DAY (RSF)	REQUIREMENT														
RESIDUE PARTIC.	ACTUAL* *	25.1	36.18	28.2	31.3	15.4	13.1	15.7	8.35	5.59	6.6	7.1	7.4	16.7	
KG /DAY (RSP)	REQUIREMENT	12.6	13.1	13.5	14	14	13.9	13.8	11.3	11.5	12.3	11.9	11.2	12.8	6
ZINC UNF.TOT.	ACTUAL	0.11	0.07	0.19	0.18	0.22	0.26	0.21	0.135	0.03	0.04	0.039	0.03	0.13	
KG /DAY (ZNUT)	GUIDELINE														

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 86% IN 1989.

* * C OF A EFFECTIVE DATE MAY 12 1989

WASTEWATER DISCHARGE SUMMARY
1989

COMPANY NAME: Williams Operating Corporation.
(previously reported as LacMinerals/Page Wiliam Mine)

IMIS NO.: 0052710209

& PLANT LOCATION: Marathon

MOE REGION: North West

DISTRICT: Thunder Bay

INDUSTRIAL SECTOR: Metal Mining and Smelting

SIC CODE: 052

RECEIVING WATERBODY: DIRECT: Frank Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT CHARACTERISTICS: Hevy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Approved treatment utilizing hydrogen peroxide for cyanide destruction, and co-precipitation of heavy metals utilizing copper sulphate and ferril sulphate.

DISCHARGE TYPE: Continuous during seasonal discharge.

COMPANY LIMITS SET BY: CERTIFICATE OF APPROVAL (EFFECTIVE DATE): July 1987 Requirements under Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

EXCEEDANCES: None. In compliance with all reported data

REMEDIAL ACTIONS:

COMMENTS: No discharge Jan to April and month of Dec. 1989.

Three trout bioassays conducted in 1989, indicated the final effluent to have been non-acutely lethal to test fish.

02/27/91

005271-02-0(9) WILLIAMS OPERATING CORPORATION, WILLIAMS MARATHON REPORT DATE: 28 FEB 90
CONTROL POINT: 0100 DATA FOR 1989

FLOW/CONCENTRATION PARAMETERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE	TOTAL EXCEEDANCES
ARSENIC UNF.TOT.	ACTUAL					0.118	0.275	0.107	0.152	0.307	0.306			0.211	
MG/L (ASUT)	GUIDELINE					1	1	1	1	1	1			1	0
CYANIDE AVAIL	ACTUAL					0.27	0.04	0.03	0.04	0.11	0.15			0.107	
MG/L (CCNAUR)	GUIDELINE														
COPPER UNF.TOT.	ACTUAL					0.102	0.005	0.005	0.006	0.013	0.006			0.023	
MG/L (CUUT)	GUIDELINE					1	1	1	1	1	1			1	0
MOLYBDEN UNF.TOT.	ACTUAL					0.296	0.485	0.647	0.704	0.79	0.61			0.589	
MG/L (MOUT)	GUIDELINE														
LEAD UNF.TOT.	ACTUAL					0.02	0.022	0.025	0.024	0.027	0.028			0.024	
MG/L (PBUT)	GUIDELINE					1	1	1	1	1	1			1	0
PH	ACTUAL					7.7	7.65	7.58	7.76	7.8	7.86			7.73	
(PH)	GUIDELINE														0
ANTIMONY UNF.TOT.	ACTUAL					0.244	0.567	0.7	0.682	0.677	0.708			0.596	
MG/L (SBUT)	GUIDELINE														
ZINC UNF.TOT.	ACTUAL					0.012	0.005	0.008	0.006	0.002	0.005			0.006	
MG/L (ZNUT)	GUIDELINE					1	1	1	1	1	1			1	0

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 10.6

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1989.

APPENDIX B

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
ABITIBI-PRICE INC.	IROQUOIS FALLS	Hudson Bay	A-1
ABITIBI-PRICE INC. (Ft. William Division)	THUNDER BAY	Lake Superior	A-2
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	Lake Superior	A-3
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	Lake Superior	A-4
AGNICO EAGLE MINES LTD. (Penn Mill)	COLEMAN TWP	Ottawa River	A-5
AGNICO EAGLE MINES LTD. (Refinery)	COLEMAN TWP	Ottawa River	A-6
ALGOMA STEEL	SAULT STE. MARIE	St. Mary's River	A-7
AMERICAN BARRICK RESOURCES GROUP	KIRKLAND LAKE	Hudson Bay	A-9
AMERICAN STANDARD - Div. of WABCO	CAMBRIDGE	Lake Erie	A-10
ATLAS SPECIALTY STEEL COMPANY LTD.	WELLAND	Lake Ontario	A-11
AULT FOODS LTD.	WINCHESTER	St. Lawrence R.	A-12
BEAVER WOOD FIBRE COMPANY LTD.	THOROLD	Lake Ontario	A-13
B.F.GOODRICH	NIAGARA FALLS	Lake Ontario	A-14
BOISE CASCADE CANADA LTD.	FORT FRANCES	Hudson Bay	A-15
BOISE CASCADE CANADA LTD.	KENORA	Hudson Bay	A-16
BOND GOLD CANADA LTD.	KENORA	Hudson Bay	A-17
BTL SPECIALTY RESINS	BELLEVILLE	Lake Ontario	A-18
CAMECO	BLIND RIVER	Lake Huron	A-19
CAMECO	PORT GRANBY	Lake Ontario	A-20
CAMECO	PORT HOPE	Lake Ontario	A-21
CAMECO	WELCOME	Lake Ontario	A-22
CAMPBELL SOUP COMPANY LTD.	ST. MARYS	Lake Erie	A-23
CAMPBELL'S WELLINGTON MUSHROOM FARM	WELLINGTON	Lake Ontario	A-24
CANADIAN CANNERS LTD.	ST. DAVIDS	Lake Ontario	A-25
CANADIANOXY CHEMICALS	FORT ERIE	Lake Ontario	A-26
CANADIAN PACIFIC FOREST PRODUCTS	DRYDEN	Hudson Bay	A-27
CANADIAN PACIFIC FOREST PRODUCTS	THUNDER BAY	Lake Superior	A-28
CANAMAX LTD. Bell Creek Mine	PORCUPINE	Hudson Bay	A-29
CASCO INC.	CARDINAL	St. Lawrence R.	A-30
CELANESE CANADA INC.	TWP. OF ERNESTOWN	Lake Ontario	A-31
CHAMPLAIN INDUSTRIES LTD.	TARA	Lake Huron	A-32

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
CORNWALL CHEMICALS LTD.	CORNWALL	St. Lawrence R.	A-33
COURTAULDS LTD. & BCL LTD.	CORNWALL	St. Lawrence R.	A-34
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	Lake Ontario	A-35
CYANAMID CANADA INC. (Welland Plant)	WELLAND	Lake Ontario	A-36
DENISON MINES LTD.	ELLIOT LAKE	Lake Huron	A-37
DENISON MINES LTD. (Stanrock)	ELLIOT LAKE	Lake Huron	A-38
DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	Lake Huron	A-39
DETOUR LAKE MINE	TIMMINS	Hudson Bay	A-40
DICKENSON MINE LTD.	BALMERTON	Hudson Bay	A-41
DOFASCO INC.	HAMILTON	Lake Ontario	A-42
DOFASCO INC. - Adams Mine	KIRKLAND LAKE	Ottawa River	A-43
DOMTAR FINE PAPERS	CORNWALL	St. Lawrence R.	A-44
DOMTAR FINE PAPERS	ST.CATHARINES	Lake Ontario	A-45
DOMTAR PACKAGING LTD.	RED ROCK	Lake Superior	A-46
DOMTAR PACKAGING	TRENTON	Lake Ontario	A-47
DOMTAR WOOD PRESERVING	TRENTON	Lake Ontario	A-48
DOW CHEMICAL OF CANADA LTD.	SARNIA	Lake Erie	A-49
DUPONT CANADA INC.	CORUNNA	Lake Erie	A-50
DUPONT CANADA INC.	KINGSTON TOWNSHIP	Lake Ontario	A-51
DUPONT CANADA INC.	MAITLAND	St. Lawrence R.	A-52
EASTMAQUE GOLD MINES	KIRKLAND LAKE	Ottawa River	A-53
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	Lake Huron	A-54
E. B. EDDY FOREST PRODUCTS LTD.	OTTAWA	Ottawa River	A-55
ESSO CHEMICALS	SARNIA	Lake Erie	A-56
ESSO PETROLEUM CANADA	JARVIS	Lake Erie	A-57
ESSO PETROLEUM CANADA	SARNIA	Lake Erie	A-58
ESSROC CANADA LTD.	PICTON	Lake Ontario	A-59
ETHYL CANADA INC.	CORUNNA	Lake Erie	A-60
EXOLON	THOROLD	Lake Ontario	A-61
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	Lake Huron	A-62
FALCONBRIDGE LTD.	FALCONBRIDGE	Lake Huron	A-63
FALCONBRIDGE LTD., Kidd Creek Mine (Met. Site)	TIMMINS	Hudson Bay	A-64

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
FALCONBRIDGE LTD., Kidd Creek Mine (Mine Site)	TIMMINS	Hudson Bay	A-65
FALCONBRIDGE LTD., Lockerby Mine	ONAPING	Lake Huron	A-66
FALCONBRIDGE LTD., Moose Lake WWTP	ONAPING FALLS	Lake Huron	A-67
FALCONBRIDGE LTD., Onaping Mine	ONAPING FALLS	Lake Huron	A-68
FIBERGLAS CANADA LTD.	SARNIA	Lake Erie	A-69
FLEET MFG. COMPANY LTD.	FORT ERIE	Lake Ontario	A-70
FORD MOTOR COMPANY	NIAGARAFALLS	Lake Ontario	A-71
FORD MOTOR COMPANY	ST. THOMAS	Lake Erie	A-72
FORD MOTOR COMPANY	WINDSOR	Lake Erie	A-73
GAY LEE FOODS COOPERATIVE LTD.	TEESWATER	Lake Huron	A-74
G. E PLASTICS LTD.,	COBOURG	Lake Ontario	A-75
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	Lake Erie	A-76
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-77
GIANT YELLOWKNIFE MINES LTD. - Pamour Mine	TIMMINS	Hudson Bay	A-78
GIANT YELLOWKNIFE MINES LTD. - Schumacher Mine	TIMMINS	Hudson Bay	A-79
GLEN AYR KITTEN MILLS	VILLAGE OF LANARK	Ottawa River	A-80
GOLDEN SHIELD RESOURCES - KERR DIVISION.	VIRGINIATOWN	Ottawa River	A-81
HALEY INDUSTRIES	HALEY	Ottawa River	A-82
HEMLO GOLD MINES INC.)	MARATHON	Lake Superior	A-83
I.C.I CANADA INC. (form. CIL LTD)	CORNWALL	St. Lawrence River	A-84
I.C.I CANADA INC. (form. CIL LTD).	COURTRIGHT	Lake Erie	A-85
INCO LTD., Copper Cliff Creek Nickel Refinery	COPPER CLIFF	Lake Huron	A-86
INCO LTD., Copper Cliff Creek W.W.T.	COPPER CLIFF	Lake Huron	A-87
INCO LTD., Crean Hill Mine	COPPER CLIFF	Lake Huron	A-88
INCO LTD., Garson Mine	COPPER CLIFF	Lake Huron	A-89
INCO LTD., Levack Tailings Area	COPPER CLIFF	Lake Huron	A-90
INCO LTD., Nolin Creek	COPPER CLIFF	Lake Huron	A-91
INCO METALS COMPANY	PORT COLBORNE	Lake Erie	A-92
INCO LTD.	SHEBANDOWAN	Lake Erie	A-93
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	Lake Erie	A-94
JAMES RIVER MARATHON LTD.	MARATHON	Lake Superior	A-95
J.M.SCHNEIDER INC.	AYR	Lake Erie	A-96
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	Lake Huron	A-97
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	Lake Ontario	A-98
KIMBERLY-CLARK OF CANADA LTD.	TERRACE BAY	Lake Superior	A-99
KRAFT FOODS LTD.	INGLESIDE	St. Lawrence R.	A-100

APPENDIX B ...continued

ALPHABETICAL LIST OF SOURCES

Company	Location	Basin	Page
LAC D'AMIANTE DU QUEBEC LTEE. (Aquarius Mine)	PORCUPINE	Hudson Bay	A-101
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	Ottawa River	A-102
LAFARGE CANADA LTD.	BATH	Lake Ontario	A-103
LUZENAC INC. (form. Steetley Talc Ltd).	FOLEYET	Lake Ontario	A-104
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	Lake Huron	A-105
MALETTE KRAFT PULP AND PAPER LTD.	SMOOTH ROCKFALLS	Hudson Bay	A-106
MATTABI MINES LTD.	DISTRICT OF KENORA	Hudson Bay	A-107
MCBEAN MINES LTD.	DOBIE	Ottawa River	A-108
MINNOVA WINSTON LAKE PROJECT	SCHREIBER	Lake Superior	A-109
MITSUBISHI ELECTRONICS INC.	MIDLAND	Lake Huron	A-110
NESTLE ENTERPRISES LTD.	CHESTERVILLE	Ottawa River	A-111
NITROCHEM	MAITLAND	St. Lawrence R.	A-112
NORANDA FOREST INC. (form. Fraser Inc.).	THOROLD	Lake Ontario	A-113
NORANDA INC. LYON LAKE DIV.	DISTRICT OF THUNDER BAY	Lake Superior	A-114
NORANDA MINERALS LIMITED GECO DIV.	MANITOUWADGE	Lake Superior	A-115
NORTHERN WOOD PRESERVERS	THUNDER BAY	Lake Superior	A-116
NORTON COMPANY	NIAGARA FALLS	Lake Ontario	A-117
NOVA PETROCHEMICALS INC.(form. Petrosar).	CORUNNA	Lake Erie	A-118
NOVA PETROCHEMICALS INC.(form. Polysar).	SARNIA	Lake Erie	A-119
NOVACOR LTD.	SARNIA	Lake Erie	A-120
OGILVIE MILLS LTD.	THUNDER BAY	Lake Superior	A-121
OMSTEAD FOODS LTD.	WHEATLEY	Lake Erie	A-122
ONTARIO HYDRO TGS, Atikokan	ATIKOKAN	Lake Superior	A-123
ONTARIO HYDRO (Domestic STP)	TIVERTON	Lake Huron	A-124
ONTARIO HYDRO (Bruce NPGS A + B)	TIVERTON	Lake Huron	A-125
ONTARIO HYDRO (Heavy Water Plant)	TIVERTON	Lake Huron.	A-126
ONTARIO HYDRO TGS., Lakeview	TORONTO	Lake Ontario	A-127
ONTARIO HYDRO TGS., Lambton	COURTRIGHT	Lake Erie	A-128
ONTARIO HYDRO TGS., Lennox	S. FREDERICKSBURG	Lake Ontario	A-129
ONTARIO HYDRO TGS, Nanticoke (Ash Lagoon)	NANTICOKE	Lake Erie	A-130
ONTARIO HYDRO TGS, Nanticoke	NANTICOKE	Lake Erie	A-131
ONTARIO HYDRO (NPGS A + B)	PICKERING	Lake Ontario	A-132
ONTARIO HYDRO TGS, Thunder Bay	THUNDER BAY	Lake Superior	A-133
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PETRO CANADA PRODUCTS INC. - Oakville Plant	OAKVILLE	Lake Ontario	A-136
PLACER - DOME MINE (CAMPBELL RED LAKE MINE)	BALMERTON	Hudson Bay	A-137
PLACER - DOME INC.- DONNA LAKE MINE.	KENORA	Hudson Bay	A-138
PLACER - DOME MINES	SOUTH PORCUPINE	Hudson Bay	A-139
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	Lake Ontario	A-140
REXWOOD PRODUCTS LTD.	NEW LISKEARD	Ottawa River	A-141
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	Lake Huron	A-142
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	Lake Huron	A-143
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	Lake Huron	A-144
ROHM AND HASS	CORNWALL	St. Lawrence	A-145
ROTHSAY LTD.	ROTHSAY	Lake Erie	A-146
SHELL CANADA LTD.	CORUNNA	Lake Erie	A-147
SHERMAN MINE	TEMAGAMI	Lake Huron	A-148
SIFTO CANADA INC.	GODERICH	Lake Huron	A-149
SPRUCE FALLS POWER & PAPER CO. LTD.	KAPUSKASING	Hudson Bay	A-150
STANCHEM	CORNWALL	St. Lawrence	A-151
STANLEY HARDWARE	NEW HAMBURG	Lake Erie	A-152
ST. MARYS PAPER INC.	SAULT STE MARIE	Lake Huron	A-153
STELCO INC.	HAMILTON	Lake Ontario	A-154
STELCO INC., LAKE ERIE WORKS	NANTICOKE	Lake Erie	A-155
STELCO PAGE HERSEY	WELLAND	Lake Ontario	A-156
STELCO WELLAND TUBES	WELLAND	Lake Ontario	A-157
STEPAN CANADA INC. (form. Domtar Chemicals G).	LONGFORD MILLS	Lake Huron	A-158
STRATHCONA PAPER CO. (Roman corp. Div.).	CAMDEN EAST TWP	Lake Ontario	A-159
SUNCOR INC., SUNOCO GROUP	SARNIA	Lake Erie	A-160
TECK-CORUNA INC.	MARATHON	Lake Superior	A-161
TEND-R-FRESH DIV. (form. Sherwood Poultry Farms)	DUNDAS	Lake Ontario	A-162
TEND-R-FRESH POULTRY LTD.	PETERSBURG	Lake Erie	A-163
THE ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	Lake Huron	A-164
THE CANADIAN SALT COMPANY LTD.	WINDSOR	Lake Erie	A-165
TRENT VALLEY PAPERBOARD MILLS	GLEN MILLER	Lake Ontario	A-166

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ALPHABETICAL LIST OF SOURCES

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WASHINGTON MILLS LTD. (form. SOHIO)	NIAGARA FALLS	Lake Ontario	A-169
WICKES MANUFACTURING CO. LTD.	WINDSOR	Lake Erie	A-170
WILLIAMS OPERATING CORP. (form. LacMinerals).	MARATHON	Lake Superior	A-171

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LIST OF SOURCES BY MAJOR WATERSHED BASIN

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AMERICAN BARRICK RESOURCES GROUP	KIRKLAND LAKE	A-9
BOISE CASCADE CANADA LTD.	FORT FRANCES	A-15
BOISE CASCADE CANADA LTD.	KENORA	A-16
BOND GOLD CANADA LTD.	KENORA	A-17
CANADIAN PACIFIC FOREST PRODUCTS	DRYDEN	A-27
CANAMAX LTD. Bell Creek Mine	PORCUPINE	A-29
DETOUR LAKE MINE	TIMMINS	A-40
DICKENSON MINE LTD.	BALMERTON	A-41
FALCONBRIDGE LTD., Kidd Creek Mine (Met. Site)	TIMMINS	A-64
FALCONBRIDGE LTD., Kidd Creek Mine (Mine Site)	TIMMINS	A-65
GIANT YELLOWKNIFE MINES LTD. - Pamour Mine	TIMMINS	A-78
GIANT YELLOWKNIFE MINES LTD. - Schumacher Mine	TIMMINS	A-79
LAC D'AMIANTE DU QUEBEC LTEE.	PORCUPINE	A-101
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MATTABI MINES LTD.	DISTRICT OF KENORA	A-107
PLACER - DOME MINE (CAMPBELL RED LAKE MINE)	BALMERTON	A-137
PLACER - DOME INC.-DONA LAKE MINE	KENORA	A-138
PLACER - DOME MINES	SOUTH PORCUPINE	A-139
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LAKE SUPERIOR		
ABITIBI-PRICE INC. (Ft. William Division)	THUNDER BAY	A-2
ABITIBI-PRICE INC. (Provincial Papers Division)	THUNDER BAY	A-3
ABITIBI-PRICE INC. (Thunder Bay Division)	THUNDER BAY	A-4
CANADIAN PACIFIC FOREST PRODUCTS	THUNDER BAY	A-28
DOMTAR PACKAGING LTD.	RED ROCK	A-46
HEMLO GOLD MINES INC.	MARATHON	A-83
JAMES RIVER MARATHON LTD.	MARATHON	A-95
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NORTHERN WOOD PRESERVERS	THUNDER BAY	A-116
OGILVIE MILLS LTD.	THUNDER BAY	A-121
ONTARIO HYDRO TGS, Atikokan	ATIKOKAN	A-123
ONTARIO HYDRO TGS, Thunder Bay	THUNDER BAY	A-133
TECK-CORUNA INC.	MARATHON	A-161
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LAKE HURON ... (includes St. Marys River)		
ALGOMA STEEL	SAULT STE. MARIE	A-7
CAMECO	BLIND RIVER	A-19
CHAMPLAIN INDUSTRIES LTD.	TARA	A-32
DENISON MINES LTD.	ELLIOT LAKE	A-37
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DENISON MINES LTD. (Williams Lake)	ELLIOT LAKE	A-39
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	A-54
EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC.	NORTH BAY	A-62
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INCO LTD., Copper Cliff Nickel Refinery	COPPER CLIFF	A-86
INCO LTD., Copper Cliff Creek W.W.T.	COPPER CLIFF	A-87
INCO LTD., Crean Hill Mine	COPPER CLIFF	A-88
INCO LTD., Garson Mine	COPPER CLIFF	A-89
INCO LTD., Levack Tailings Area	COPPER CLIFF	A-90
INCO LTD., Nolin Creek	COPPER CLIFF	A-91
KIMBERLY-CLARK OF CANADA LTD.	HUNTSVILLE	A-97
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MITSUBISHI ELECTRONICS INC.	MIDLAND	A-110
ONTARIO HYDRO (Domestic STP)	TIVERTON	A-124

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ONTARIO HYDRO (Heavy Water Plant)	TIVERTON	A-126
RIO ALGOM LTD. (Panel Mill)	ELLIOT LAKE	A-142
RIO ALGOM LTD. (Quirke Mill)	ELLIOT LAKE	A-143
RIO ALGOM LTD. (Stanleigh Mill)	ELLIOT LAKE	A-144
SHERMAN MINE	TEMAGAMI	A-148
SIFTO CANADA INC.	GODERICH	A-149
ST. MARYS PAPER INC.	SAULT STE MARIE	A-153
STEPAN CANADA INC. (form. Domtar Chemicals G.)	LONGFORD MILLS	A-158
THE ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	A-164
LAKE ERIE ... (includes St. Clair River, Lake St. Clair and Detroit River)		
AMERICAN STANDARD - Div. of WABCO	CAMBRIDGE	A-10
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DOW CHEMICAL OF CANADA LTD.	SARNIA	A-49
DUPONT CANADA INC.	CORUNNA	A-50
ESSO CHEMICALS	SARNIA	A-56
ESSO PETROLEUM CANADA	JARVIS	A-57
ESSO PETROLEUM CANADA	SARNIA	A-58
ETHYL CANADA INC.	CORUNNA	A-60
FIBERGLAS CANADA LTD.	SARNIA	A-69
FORD MOTOR COMPANY	ST. THOMAS	A-72
FORD MOTOR COMPANY	WINDSOR	A-73
GENERAL CHEMICAL CANADA LTD.	AMHERSTBURG	A-76
I C I CANADA INC (form. CIL LTD)	COURTRIGHT	A-85
INCO METALS COMPANY	PORT COLBORNE	A-92
INCO LTD.	SHEBANDOWAN	A-93
INTERNATIONAL MINERALS AND CHEMICAL CORP.	DUNNVILLE	A-94
J.M.SCHNEIDER INC.	AYR	A-96
NOVA PETROCHEMICALS INC. (form. Petrosar)	CORUNNA	A-118
NOVA PETROCHEMICALS INC. (form. Polysar)	SARNIA	A-119
NOVACOR LTD.	SARNIA	A-120
OMSTEAD FOODS LTD.	WHEATLEY	A-122
ONTARIO HYDRO TGS., Lambton	COURTRIGHT	A-128
ONTARIO HYDRO TGS, Nanticoke (Ash Lagoon)	NANTICOKE	A-130
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SHELL CANADA LTD.	CORUNNA	A-147
STANLEY HARDWARE	NEW HAMBURG	A-152
STELCO INC., LAKE ERIE WORKS	NANTICOKE	A-155
SUNCOR SUNOCO GROUP	SARNIA	A-160
TEND-R-FRESH POULTRY LTD.	PETERSBURG	A-163
THE CANADIAN SALT COMPANY LTD.	WINDSOR	A-165
VALEO ENGINE COOLING LTD.	STRATFORD	A-167
WICKES MANUFACTURING CO. LTD.	WINDSOR	A-170
LAKE ONTARIO ... (includes Niagara River)		
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CAMECO	WELCOME	A-22
CAMPBELL'S WELLINGTON MUSHROOM FARM	WELLINGTON	A-24
CANADIAN CANNERS LTD.	ST. DAVIDS	A-25
CANADIANOXY CHEMICALS	FORT ERIE	A-26
CELANESE CANADA INC.	TWP. OF ERNESTOWN	A-31
CYANAMID CANADA INC. (Niagara Plant)	NIAGARA FALLS	A-35
CYANAMID CANADA INC. (Welland Plant)	WELLAND	A-36
DOFASCO INC.	HAMILTON	A-42
DOMTAR FINE PAPERS	ST.CATHARINES	A-45
DOMTAR PACKAGING	TRENTON	A-47
DOMTAR WOOD PRESERVING	TRENTON	A-48
DUPONT CANADA LTD.	KINGSTON TOWNSHIP	A-51
ESSROC CANADA LTD.	PICTON	A-59
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FLEET MFG. COMPANY LTD.	FORT ERIE	A-70
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GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	A-77
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	A-98
LAFARGE CANADA LTD.	BATH	A-103
LUZENAC INC. (form. Steetley Talc Ltd)	FOLEYET	A-104
NORANDA FOREST INC. (form.Fraser Inc.)	THOROLD	A-113
NORTON COMPANY	NIAGARA FALLS	A-117
ONTARIO HYDRO TGS., Lakeview	TORONTO	A-127
ONTARIO HYDRO TGS., Lennox	S. FREDERICKSBURG	A-129
ONTARIO HYDRO (NPGS A + B)	PICKERING	A-132
ORENCO (Ontario Rendering)	DUNDAS	A-134
PETRO CANADA PRODUCTS INC.- Mississauga Plant	MISSISSAUGA	A-135
PETRO CANADA PRODUCTS INC.- Oakville Plant	OAKVILLE	A-136
QUEBEC AND ONTARIO PAPER COMPANY LTD.	THOROLD	A-140
STELCO INC.	HAMILTON	A-154
STELCO PAGE HERSEY	WELLAND	A-156
STELCO WELLAND TUBES	WELLAND	A-157
STRATHCONA PAPER COMPANY (Roman Corp. Div.)	TWP OF CAMDEN EAST	A-159
TEND-R-FRESH DIV. (form. Sherwood Poultry Farms)	DUNDAS	A-162
TRENT VALLEY PAPERBOARD MILLS	GLEN MILLER	A-166
WASHINGTON MILLS LTD.	NIAGARA FALLS	A-168
WASHINGTON MILLS LTD. (form. SOHIO)	NIAGARA FALLS	A-169
ST. LAWRENCE RIVER		
AULT FOODS LTD.	WINCHESTER	A-12
CASCO INC.	CARDINAL	A-30
CORNWALL CHEMICALS LTD.	CORNWALL	A-33
COURTAULDS LTD. & BCL LTD.	CORNWALL	A-34
DOMTAR FINE PAPERS	CORNWALL	A-44
DUPONT CANADA INC.	MAITLAND	A-52
I.C.I CANADA INC. (form.CIL LTD.)	CORNWALL	A-84
KRAFTS FOOD LTD.	INGLESIDE	A-100
NITROCHEM	MAITLAND	A-112
ROHM AND HASS	CORNWALL	A-145

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LIST OF SOURCES BY MAJOR WATERSHED BASIN

Company	Location	Page
STANCHEM	CORNWALL	A-151
OTTAWA RIVER		
AGNICO EAGLE MINES LTD. (Penn Mill)	COBALT	A-5
AGNICO EAGLE MINES LTD. (Refinery)	COBALT	A-6
DOFASCO INC. - Adams Mine	KIRKLAND LAKE	A-43
EASTMAQUE GOLD MINES	KIRKLAND LAKE	A-53
E. B. EDDY FOREST PRODUCTS LTD.	OTTAWA	A-55
GLEN AYR KITTEN MILLS	VILLAGE OF LANARK	A-80
GOLDEN SHIELD RESOURCES - KERR DIVISION.	VIRGINIATOWN	A-81
HALEY INDUSTRIES	HALEY	A-82
LAC MINERALS (Macassa Division)	KIRKLAND LAKE	A-102
MCBEAN MINES LTD.	DOBIE	A-108
NESTLE ENTERPRISES LTD.	CHESTERVILLE	A-111
REXWOOD PRODUCTS LTD.	NEW LISKEARD	A-141

APPENDIX D
SOURCES IN MISA INDUSTRIAL SECTORS

0100 PETROLEUM REFINING

Esso Petroleum Canada (Nanticoke Refinery)	Jarvis
Esso Petroleum Canada, Sarnia Refinery	Sarnia
Petro-Canada Inc., Lake Ontario Refinery	Mississauga
Petro-Canada Inc., Lake Ontario Refinery	Oakville
Nova Petrochemicals Inc. (formerly Petrosar).	Corunna
Suncor Inc., Sunoco Division	Sarnia
Shell Canada Products Ltd.	Corunna

0200 ORGANIC CHEMICAL MANUFACTURING

AKZO Chemicals	Sarnia*
BASF Canada Inc.	Sarnia*
B. F Goodrich Canada Inc.	Niagara Falls
BTL Specialty Resins, A Division of Bakelite Thermosets Ltd.	Belleville
CanadianOxy Chemicals Ltd.	Fort Erie
Celanese Canada Inc.	Millhaven
Chinook Chemicals	Sombra*
Cornwall Chemicals Limited	Cornwall
Courtaulds Fibres Canada, A Division of Courtaulds Fibres Inc.	Cornwall
Courtaulds Films Canada, A Division of International Paints (Canada) Ltd.	Cornwall
Dow Chemical Canada Inc.	Sarnia
Du Pont Canada Inc.	Corunna
Du Pont Canada Inc.	Kingston
Du Pont Canada Inc.	Maitland
Esso Chemical Canada, a Division of Imperial Oil Ltd.	Sarnia
Ethyl Canada Inc.	Corunna
G. E. Plastics Ltd.	Cobourg
Novacor Chemicals Ltd.,	Mooretown
Nova Petrochemicals Ltd. (formerly Polysar).	Sarnia
Rohm and Haas Canada Inc.	Morrisburg*
Stepan C anada (formerly Domtar Inc.)	Longford Mills
Uniroyal Chemical Ltd.	Elmira*

* to be included in future reports

0300 PULP AND PAPER

Abitibi-Price Inc. (Iroquois Falls Division)	Iroquois Falls
Abitibi-Price Inc., (Ft. William Division)	Thunder Bay
Abitibi-Price Inc., (Provincial Papers Division)	Thunder Bay
Abitibi-Price Inc., (Thunder Bay Division)	Thunder Bay
Beaver Wood Fibre Company	Thorold
Boise Cascade Ltd.	Fort Frances
Boise Cascade Ltd.	Kenora
Canadian Pacific Forest Products Ltd.	Thunder Bay
Canadian Pacific Forest Products Ltd.	Dryden
Domtar Inc. (Fine Papers Division)	Cornwall
Domtar Inc. (Fine Papers Division)	St. Catharines
Domtar Inc. (Containerboard Division)	Trenton
Domtar Inc. (Containerboard Division)	Red Rock
E.B. Eddy Forest Products Ltd.	Espanola
E.B. Eddy Forest Products Ltd.	Ottawa
James River Marathon Ltd.	Marathon
Kimberly-Clark of Canada Ltd.	St. Catharines
Kimberly-Clark of Canada Ltd.	Huntsville
Kimberly-Clark of Canada Ltd.	Terrace Bay
MacMillan Bloedel Ltd.	Sturgeon Falls
Malette Inc., Malette Kraft Pulp and Paper Division	Smooth Rock Falls
Noranda Forest Inc. (formerly Fraser Inc.)	Thorold
Strathcona Paper Company (formerly Roman Corp. Ltd)	Camden East Twp.
Spruce Falls Power and Paper Co. Ltd.	Kapuskasing
St. Mary's Paper Inc.	Sault Ste. Marie
Strathcona Paper Company (formerly Roman Corp. Ltd)	Camden East Twp.
Quecbec and Ontario Paper Company Inc.	Thorold
Trenton Paperboard Industries Corporation, Trent Valley Paperboard Mills Division	Napanee

0400 METAL MINING AND REFINING

Agnico Eagle Mines Ltd., (Refinery)	Coleman twp
Agnico-Eagle Mines Ltd. (Leroy Project)	Gowganda *
Agnico-Eagle Mines Ltd. (Penn Mill)	Coleman Twp. *
American Barrick Resources Corp.	Harker Twp. *
Ateba Mines Limited,	Beardmore *
Bond Gold Mines Limited, Broulan Reef	Timmins *
Belmoral Mines Ltd.	Timmins *
CAMECO	Port Hope
CAMECO	Port Granby
CAMECO	Welcome
CAMECO	Blind River
Canamax Resources Inc., Bell Creek Mine	Timmins
Canamax Resources Inc., Kremzar Mine	Finan Twp., *
Canamax Resources Inc., Marhill	Timmins *
Citadel Gold Mines Inc.	McMurray Twp. *
Denison Mines Ltd., (Stollery Lake)	Elliot Lake
Denison Mines Ltd., (Stanrock)	Elliot Lake
Denison Mines Ltd., (Williams Lake)	Elliot Lake
Detour Lake Mines Ltd.	Timmins
Dicken Mine Ltd., (Arthur W. White Mine)	Township Golden
Eastmaque Gold Mines	Kirkland Lake
Falconbridge Ltd.	Falconbridge
Falconbridge Ltd.,Kidd Creek Mines Ltd., (Metalurgical Site)	Timmins
Falconbridge Ltd.,Kidd Creek Mines Ltd., (Mine Site)	Timmins
Falconbridge Ltd., (Lockerby Mine)	Falconbridge
Falconbridge Ltd., (Moose Lake)	Falconbridge
Falconbridge Ltd., (Onaping Mine)	Onaping Falls
Giant Yellowknife Mines Ltd., ERG Resources	Timmins *
Giant Yellowknife Mines Ltd., Pamour #1	Timmins

* to be included in future reports

APPENDIX D... continued

0400 METAL MINING AND REFINING continued ....

Giant Yellowknife Mines Ltd., Pamour-Schumacher	Timmins
Giant Yellowknife Mines Ltd., Ross Mine	Timmins *
Granges Exploration Limited, Mishibishu Lake	Wawa *
Hemlo Gold Mines Ltd., Golden Giant Mine	Hemlo *
Golden Shield Resources (Kerr Addison Mine)	Virginiatown
Inco Limited, (Copper Cliff Creek Nickel Refinery)	Sudbury
Inco Limited, (Copper Cliff Creek Treatment)	Sudbury
Inco Limited, (Crean Hill)	Sudbury
Inco Limited, (Garson Mine)	Sudbury
Inco Limited, (Levack Tailings Area)	Sudbury
Inco Limited, (Nolin Creek)	Sudbury
Inco Limited, (Whistle)	Sudbury*
Inco Metals Limited	Shebandowan
Inco Metals Limited.	Port Colborne
Kidd Creek Mines Ltd., Owl Creek Mine	Timmins*
Lac D'Aminante Du Quebec Ltee.	Timmins
Lac Minerals, (Macassa Div.)	Kirkland Lake
Lac Minerals, Page Williams Mine	Hemlo
Madeleine Mines Ltd./Boise Minerals Inc.	Jaffray-Melick Twp.*
Mattabi Mines Ltd.	District of Kenora
Minnova Inc. Winston Lake Project	Schreiber
Muscocho Explorations Ltd., Jerome Mine	Osway Twp. *
Muscocho Explorations Ltd., Magnacon Mine	Wawa *
Muscocho Explorations Ltd., Majino Mine	Finan Twp. ,Goundreau*
Noranda Hemlo Inc.	Marathon
Noranda Inc. Lyon Lake Division	Thunder Bay District
Noranda Mines Ltd., (GECO Division)	Manitouwadge
Orofino Resources Ltd., Scadding Mine	Scadding Twp.*

* to be included in future reports

0400 METAL MINING AND REFINING continued ....

Placer-Dome Inc., (Campbell Red Lake Mine)	Golden Township
Placer-Dome Inc., (Dona Lake Mine)	Pickle Lake*
Placer-Dome Inc., (Dome Mine)	South Porcupine
Renabie Gold Mines Ltd.	Renabie *
Rio Algom Ltd., (Lancor/Nordic)	Elliot Lake*
Rio Algom Ltd., (Panel Mill)	Elliot Lake
Rio Algom Ltd., (Pronto)	Elliot Lake*
Rio Algom Ltd., (Quirke Mill)	Elliot Lake
Rio Algom Ltd., (Stanleigh Mill)	Elliot Lake
Sherman Mine	Temagami
Sifto Salt Ltd..	Goderich
St. Andrew Gold Fields	Stock Twp. *
Teck-Corona Inc.	Marathon
The Algoma Steel Corp. Ltd., (Ore Div.)	Wawa
The Canadian Salt Company Ltd.	Windsor

0500 IRON AND STEEL

Algoma Steel Corporation Ltd.	Sault Ste. Marie
Atlas Steel Company Ltd.	Welland
Dofasco	Hamilton
Ivaco	L'Orignal*
Lasco	Whitby*
Stelco Inc.	Hamilton
Stelco Inc., (Lake Erie Works)	Nanticoke

* to be included in future reports

0600 ELECTRIC POWER GENERATION

Ontario Hydro, Atikokan TGS	Atikokan
Ontario Hydro, J.C. Keith TGS	Windsor*
Ontario Hydro, Lakeview TGS	Toronto
Ontario Hydro, Lambton TGS	Courtright
Ontario Hydro, Lennox TGS.	Fredericksburg
Ontario Hydro, Nanticoke TGS	Nanticoke
Ontario Hydro, R.L. Hearn TGS	Toronto*
Ontario Hydro, Thunder Bay TGS	Thunder Bay
Ontario Hydro, Darlington NGS	Bowmanville*
Ontario Hydro, Darlington Construction	Bowmanville*
Ontario Hydro, Bruce Nuclear, Power Development Services	Tiverton*
Ontario Hydro, Bruce Sewage Treatment Plant	Tiverton
Ontario Hydro, Bruce Heavy Water Plant	Tiverton
Ontario Hydro, Bruce Nuclear Waste Storage Site	Tiverton *
Ontario Hydro, Bruce Nuclear, NGS-A and NGS-B	Tiverton
Ontario Hydro, Pickering NGS-A and NGS-B	Pickering
Ontario Hydro, Aguasabon GS	Aguasabon River*
Ontario Hydro, Arnprior GS	Madawaska River *
Ontario Hydro, Decew NF 23 GS	Welland Canal *
Ontario Hydro, Pine Portage GS	Nipigon River *
Ontario Hydro, Silver Falls GS	Kaministikia River *
Ontario Hydro, Sir Adam Beck2 GS	Queenston*
AECL Douglas Point WMF	Tiverton*
AECL Nuclear Power Demonstration WMF	Rolphton*
AECL Chalk River Nuclear Laboratory	Chalk River*

0700 INORGANIC CHEMICALS

Albright and Wilson Americas	Dunnville*
Allied Chemicals Canada Inc.	Amherstburg*
Cabot Canada Ltd.	Sarnia*
Columbian Chemicals Canada Ltd.	Hamilton*
I C I Canada Inc. (formerly CIL - Chlor Alkali & CONPAC Facilities)	Cornwall
I C I Canada Inc. (formerly CIL).	Courtright
I C I Canada Inc. (formerly CIL - ChlorAlkali & CONPAC Facilities)	Cornwall
Cyanamid Canada Inc., (Niagara Plant)	Niagara Falls

* to be included in future reports

APPENDIX D... continued

0700 INORGANIC CHEMICALS ....continued

Cyanamid Canada Inc., (Welland Plant)	Niagara Falls
Explosives Technologies International	North Bay
Fiberglas Canada Inc.	Sarnia
General Chemical Canada Ltd.	Amherstburg
IMC Corporation	Dunnville
Nitrochem Inc.	Maitland
Norton Canada Inc.	Niagara Falls
Partek Insulations Ltd.	Sarnia*
Sulco Chemicals Ltd.	Elmira*
The Exolon-ESK Company of Canada Ltd.	Thorold
Union Carbide Canada Ltd.	Welland *
Washington Mills Limited	Niagara Falls
Washington Mills, (Electro Minerals Corporation)	Niagara Falls
Welland Chemical Ltd.	Sarnia*

0800 METAL CASTING

Acustar	Etobicoke *
Canada Alloy Castings Ltd.	Kitchener *
Kubota	Orillia*
Canada Pipe Company Ltd.	Hamilton *
Ford Motor Co. of Canada Ltd.	Windsor
Franklin Electric of Canada Ltd.	Strathroy *
General Motor of Canada Ltd.	St. Catharines
Haley Industries Ltd.	Haley*
Richmond Die Casting Co. Ltd.	Cornwall*
Western Foundry Co. Ltd.	Wingham*

0900 INDUSTRIAL MINERALS

Allan G. Cook Ltd.	Waubaushene*
Beachvilime Ltd.	Beachville*
Bertrand and Frere Construction Co.	L'Original*
Brampton Brick	Brampton*
Cal Graphite Corporation	*
Canada Brick.	Cooksville*
Canada Brick.	Gloucester*

0900 INDUSTRIAL MINERALS ...continued

Canada Brick.	Burlington*
Canada Brick.	Streetsville*
Canada Talc. Madoc,	Mamora*
Cornwall Sand & Gravel	Cornwall*
Cornwall Sand & Gravel	Richier*
Cruickshank Construction	Eglinburg*
CGC Inc.	Hagersville *
Cruikshank Construction Ltd.	Morrisburg *
Domtar Construction Materials	Caledonia*
Essroc Canada Inc.	Picton
Flamboro Quarries Ltd.	Dundas*
Gormley Aggregates Ltd.	Carden Township*
Guelph Dolime Ltd.	Guelph*
Hard Rock Paving Co. Ltd	Welland*
Kam Aggregates	Kaninistiquia*
Lafarge Canada Inc.	Bath
Lafarge Canada Inc.	Woodstock*
Luzenac Inc.	Penhorwood Twp.*
Milton Limestone (LAC Minerals)	Milton*
Nelson Aggregate Co.	Burlington*
Nelson Aggregate Co.	Uhthoff*
Permanent Concrete (Cornwall)	Cornwall*
Reiss Lime Co. of Canada Ltd.	Blind River*
Ridgemount Quarries Ltd.	Ridgemount *
R.W. Tomlinson Ltd.	Nepean*
Steetley Quarry Products Inc.	Thorold*
Stelco Chem. Lime Works	Ingersoll*
St. Lawrence Cement	Mississauga*
St. Lawrence Cement Inc.	Colborne*
St. Marys Cement	Bowmanville*
St. Marys Cement	St. Marys*
Timminco Ltd. (Metals Div.)	Haley Station*
Warren Paving & Materials	Gloucester*
Westroc Industries Ltd.	Drumbo*

METAL, PLASTIC FABRICATING & FINISHING

American Standard Division of Wabco Standard	Cambridge
Valeo Engine Cooling Ltd.	Stratford
Fleet Manufacturing Company Ltd.	Fort Erie
Ford Motor Company of Canada Ltd.	St. Thomas
GNB Batteries Canada Ltd.	Fort Erie*
Mitsubishi Electronics Ltd.	Midland
Stanley Hardware Div. of Stanley Canada Inc.	New Hamburg
Stelco Page Hersey Works	Welland
Stelco Welland Tube Works	Welland
Wickes Manufacturing Co. Ltd.	Windsor

FOOD PROCESSORS

Campbell Soup Company Ltd.	St. Marys
Canadian Canners Ltd.	St. David
CASCO. Ltd.	Cardinal
Champlain Industries Ltd.	Tara
Gay Lee Foods Cooperative Ltd.	Teeswater
J.M. Schneider Inc.	Ayr

FOOD PROCESSORS continued...

Kraft Foods Ltd.	Ingleside
Nestle	Chesterville
Ogilvie Mills	Thunder Bay
Omstead Foods Ltd.	Wheatley
Rothsay Ltd.	Rothsay
Tend-R-Fresh Ltd., (Div. of Maple Leaf Mills)	Petersburg

Miscellaneous

Domtar Wood Preserving Ltd.	Trenton
Northern Wood Preserving Ltd.	Thunder Bay
Ford Motor Company of Canada Ltd.	St. Thomas

APPENDIX E

POLLUTANTS AND THEIR SIGNIFICANCE

In the Great Lakes context, overall loadings are the important measure of potential impact. The pollutants monitored and controlled by the Ministry of the Environment fall into one of four major groups defined by the International Joint Commission: Physical (settleable and suspended solids, temperature); chemical (persistent toxics, non-persistent toxics and others); microbiological; and radiological. The Ontario Ministry of the Environment document, Rationale For The Establishment of Ontario's Water Quality Objectives, September, 1979, provides additional information on the significance of these pollutants.

E.1 PHYSICAL

Under quiescent conditions suspended solids settle to the bottom where they may destroy fish spawning grounds and smother benthic organisms -- the basic food for many fish. Suspended solids may also plug fish gills. Nonsettleable solids in water increase turbidity, which reduces light penetration and thus restricts phytoplankton production. Thermal discharges from electricity generating stations can, if too hot, act as a thermal barrier that prevents cold water fish from entering the receiving waters.

E.2 CHEMICAL

1. Persistent Toxics

Toxic substances are defined (G.L.W.Q.A. Article 1 (v)) as substances that "can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in an organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances. Persistent toxics are defined (G.L.W.Q.A. Annex 12 (1)) as "a toxic substance with a half life in water greater than eight weeks". Half life means the time required for the concentration of the substance to diminish to one-half its original value in the water body.

Phthalic acid esters, including dibutyl phthalate, diphthalate and other phthalates, are found in the effluent of certain organic chemical manufacturing plants and are toxic to aquatic life. Polychlorinated Biphenyls (PCBS), are persistent in the environment and tend to accumulate in fish and sediments. PCB concentration limits in fish tissue protect birds and animals that eat the fish. The concentration of metals, including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel and selenium, is controlled to protect aquatic life or drinking water. Fluoride levels in surface waters are also limited (to a concentration of 1.2 milligrams per litre) to protect drinking water.

2. Non-Persistent Toxics

Non-persistent toxics have a half life in water of less than eight weeks and include various types of oils and waxes as well as ammonia-nitrogen. oil and petrochemicals cause a visible sheen and impart an odour in receiving waters. In addition, they taint edible aquatic life and often cause deposits on nearby shores. Hydrocarbons are discharged by petroleum refineries and primary steel plants; animal fats, greases and vegetable oils from food processors; and soaps, greases, vegetable oils and waxes from soap manufacturers.

Ammonia-nitrogen is found in the effluent of primary steel producers, ore concentrating mills, fertilizer plants, petroleum refiners, synthetic organic factories and food processors. Depending on water temperature and pH, ammonia-nitrogen dissociates in varying amounts, forming un-ionized ammonia which is toxic to aquatic life. Hydrogen sulphide at undissociated concentrations above 2.0 micrograms per litre adversely affects aquatic life and also imparts a disagreeable odour to water.

3. Other Substances

The concentration of dissolved oxygen in water is lowered by the oxygen-demanding degradation of biodegradable materials. If too much oxygen is consumed by the biodegradable effluent in the receiving waters (i.e. if the Biochemical Oxygen Demand or BOD is too great), aquatic organisms can be adversely affected.

Often Chemical Oxygen Demand or Total Organic Carbon are used in place of the BOD test.

Although phosphorus is essential to plant growth and microorganism activity, too much causes excess algae, weed and slime growth. Phenolics, a group of organic substances, can adversely affect the taste of water and fish. At certain concentrations, phenolics in steel mill effluent are toxic to aquatic life forms. Phenolic compounds occur naturally in wood, coal and crude oil.

E.3 MICROBIOLOGICAL

Water used for body contact recreation activities should be substantially free from bacteria, fungi, or viruses that may produce enteric disorders or eye, ear, nose, throat and skin infections or other diseases and infections. Where any industrial effluent contains simple sugars, these compounds serve as food for bacterial growth. For each situation, the source has been required to segregate and treat separately its sanitary wastes.

E.4 RADIOLOGICAL

Radioactive pollutants, most commonly found in the nuclear fuel industry, are toxic in certain concentrations. The IJC agreement sets a limit of TED 50 (total equivalent dose integrated over 50 years calculated in accordance with IJC methodology) greater than 1 millirem to the whole body from a daily ingestion of 2.2 litres of lake water per day for one year.

E.5 HAZARDOUS POLLUTANTS

Annex 10, G.L.W.Q.A. contains two lists of compounds. One list, Appenuix 1 is titled Hazardous Polluting Substances; the other, Appendix 2 Potential Hazardous Polluting Substances. Ten inorganic chlorides are classified as hazardous and three as potentially hazardous. Cobalt is extremely toxic to fish. Three cobalt compounds are classified as hazardous.

Magnesium, an essential element for plant and animal life, can cause a cathartic action on the gastro-intestinal tract when present in drinking water in concentrations over 125 milligrams per litre. Water containing this concentration may also have a disagreeable taste.

At concentrations above 250 milligrams per litre, sulphates in raw drinking water may cause a similar effect to excessive magnesium. Ten sulphate compounds are classified Hazardous and three, Potentially Hazardous.

APPENDIX F

FEDERAL AND PROVINCIAL GUIDELINES AND REGULATIONS

This appendix is a list of Federal and provincial guidelines and regulations used to set effluent requirements. Where the limit in the guideline or regulation is a concentration number, i.e. milligrams per litre, this limit has been converted into a loading limit (as used in Appendix A, where flows are available). Multiplying the concentration limit by the flow rate times a conversion factor results in a loading requirement or guideline number. The lists shown below are extracts from the respective document identified. For a more detailed description of the guidelines and regulations refer to the particular document listed.

F.1. Control Order or Requirement and Direction

- (discharge limits may be specified as requirements)

F.2 Certificate of Approval

- (discharge limits may be specified as requirements)

F.3 Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial/1966)

Biochemical Oxygen Demand	15.0 mg/L maximum
Suspended Solids (Residue Particulate)	15.0 mg/L maximum
Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals	
- cadmium	0.001 mg/L maximum
- chromium	1.0 mg/L maximum
- copper	1.0 mg/L maximum
- lead	1.0 mg/L maximum
- mercury	0.001 mg/L maximum
- nickel	1.0 mg/L maximum
- phosphorus	1.0 mg/L max., or < 4.54 kg/day
- tin	1.0 mg/L maximum
- zinc	1.0 mg/L maximum

NOTE - Total quantity of metals discharged will also be considered and dilution with clean water streams to achieve the above concentrations is not acceptable.

Phenols	0.02 mg/L maximum
Ammonia (NH$_3$ as N)	10.0 mg/L maximum
pH	range of 5.5 to 9.5
Sulphates, Chlorides, Dissolved solids	Keep as low as possible, through best available, practicable technology.
Temperature	11 degrees Celsius maximum - above receiving water temperature.

F.4 Provincial Liquid Effluent Guidelines for the Petroleum Refining Industry (Provincial)

Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Phenols	0.02 mg/L maximum
Suspended Solids (Residue Particulate)	15.0 mg/L maximum
Ammonia (NH$_3$ as N)	10.0 mg/L maximum
Chemical Oxygen Demand (COD)	200 mg/L maximum *
pH	range of 5.5 to 9.5
Metals - chromium	1.0 mg/L maximum
- copper	1.0 mg/L maximum
- lead	1.0 mg/L maximum
- zinc	1.0 mg/L maximum
- nickel	1.0 mg/L maximum

* Interim objective based on capability of current best practicable technology; may be revised as alternative technology becomes available and where indicated by demonstrated adverse effects on receiving water quality.

F.5 Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

Biochemical Oxygen Demand	15.0 mg/L maximum
Oil and Grease (Solvent Extractables)	15.0 mg/L maximum
Metals (excluding calcium, magnesium, potassium and sodium)	1.0 mg/L maximum
Cumulative concentration of copper, lead, zinc and nickel	1.0 mg/L maximum
Cadmium, mercury	Background concentration or less
pH	range of 5.5 to 10.6
Ammonia (NH_3 as N)	10.0 mg/L maximum
Phosphorus	1.0 mg/L max., or < 4.54 kg/day
Arsenic	0.5 mg/L maximum
Cyanide	2.0 mg/L maximum
Phenols	0.02 mg/L maximum
Sulphates, dissolved solids -	Keep as low as possible using best practicable technology

F.6 Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal)

Limits shown on the Wastewater Discharge Summary sheets and accompanying tables are from Control Orders and may be based on Federal Regulations. The limits are generally set on a site-specific basis. See Table 6 of this report. The table shows Biochemical Oxygen Demand and Total Suspended Solids limits for each mill in the report.

F.7 The Chlor-Alkali Mercury Liquid Effluent Regulations, Ottawa 1977 (Federal)

2.50 grams of mercury per tonne of a plant's reference production rate (normally the arithmetic mean of actual daily production of chlorine during the previous month, excluding days when there was no production).

F.8 Atomic Energy Canada Limited licence limits. (Federal)

AECL limits are set on a site-specific basis for specific parameters.

F.9 Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa 1977 (Federal)

Authorized Levels of Substances

Item	Substance	Column I Maximum Authorized Monthly Arithmetic Mean Concentration	Column II Maximum Authorized Concentration in a Composite Sample	Column III Maximum Authorized Concentration in a Grab Sample
1	Arsenic	0.5 mg/L	0.75 mg/L	1.0 mg/L
2	Copper	0.3 mg/L	0.45 mg/L	0.6 mg/L
3	Lead	0.2 mg/L	0.3 mg/L	0.4 mg/L
4	Nickel	0.5 mg/L	0.75 mg/L	1.0 mg/L
5	Zinc	0.5 mg/L	0.75 mg/L	1.0 mg/L
6	Total Suspended Matter	25.0 mg/L	37.5 mg/L	50.0 mg/L
7	Radium-226	0.5 pCi/L	20.0 pCi/L	30.0 pCi/L
8	pH	6.0 minimum	5.5 minimum	5.0 minimum

Note: The concentrations are given as total values with the exception of radium-226 which is a dissolved value after filtration of the sample through a 3 micron filter.

The acceptable levels of substances in the Metal Mining Liquid Effluent Guidelines have the same numercial values as the authorized levels of deleterious substances prescribed in the Metal Mining Liquid Effluent Regulations.

F.10 Interim Pulp and Paper Effluent Guidelines, Ontario 1970

Concentration limits:

50 milligrams per litre for Total Suspended Solids

50 milligrams per litre for Biochemical Oxygen Demand

are acceptable on an interim basis for effluents from pulp and paper mills. Where a mill reduces the effluent volume by water conservation and by recycling, these concentrations may be expected.

F.11 Guidelines for the Control of Industrial Phosphorus Discharges In Liquid Effluents - Ontario (October 1976)

The effluent objective for industrial phosphorus discharges is 1 mg/l maximum total phosphorus. Plants with discharges of less than 4.54 kg/day total phosphorus are exempted from these guidelines.

APPENDIX G

ANALYSIS OF TRACE CONTAMINANTS

Great advances have been made in the field of contaminant analysis. In the 1950's, prevailing methods could measure effluent pollutants in the parts per thousand (or .01%) range. Methods have improved now so that some organic and most inorganic pollutants can be accurately identified and quantified in the parts per trillion range.

In the 1950's, an advance was made in organic chemical analysis with the commercial development of gas chromatographs (GC). The functions of a GC are as follows.

(a) Separation of a mixture of compounds into individual components (usually relies on the compound's physical and chemical nature, volatility, polarity, molecule size, etc.).
(b) Detection and quantification of each individual compound as it is eluted (the detector response is proportional to the concentration). However, the resolution for complex mixtures was limited and other confirmatory techniques like infrared analysis were needed.

In the mid 1960's, scientists developed ways of interfacing a mass spectrometer (MS) to a gas chromatograph. Thus, the MS became, in essence, a very specialized and highly sophisticated detector for the GC. With these two instruments coupled together, the individual compound separated by the GC enters the MS and a "finger-print" known as a mass spectrum is produced. This mass spectrum is compared with all those stored in a computer library associated with the instrument and if a match is found the compound is identified.

In the period between 1975 and 1980, GC/MS instrumentation advanced significantly, especially with regard to the computer search capabilities and libraries. The new instruments were programmed to allow rapid identification of an unknown compound by comparing its mass spectrum with over 30,000 organic compounds in a reference library.

GC/MS has been the major instrument used in various trace contaminant studies made by Ministry of Environment (MOE),Environment Canada (E.C.), U.S. Environmental Protection Agency (EPA), Petroleum Association for the Conservation of the Canadian Environment (PACE), American Petroleum Institute (API), National Council for Air and Stream Improvement of Pulp and Paper Industry of the USA (NCASI), Chemical Manufacturers Association (CMA) and others.

At the same time, methods such as atomic emission and atomic absorption spectrophotometry have been developed to permit rapid, sensitive, multi-element metal analysis.

For specific treated industrial effluents like those from Ontario's petroleum refineries, organic chemicals and the iron and steel industry, these advances in analytical methods have resulted in the identification and quantification of some organic compounds in the parts per trillion range.

APPENDIX H

Ontario Ministry of the Environment

Regional Offices

The Director
Southwest Region
985 Adelaide Street South
London, Ontario

The Director
West Central Region
119 King Street West
12th Floor
Hamilton, Ontario

The Director
Central Region
7 Overlea Blvd.
4th Floor
Toronto, Ontario
M4H 1A8

The Director
Southeastern Region
133 Dalton Street
P.O. Box 820
Kingston, Ontario

The Director
Northeastern Region
199 Larch Street
Sudbury, Ontario
P5E 5P9

The Director
Northwestern Region
435 James Street South
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

APPENDIX H ...continued

Ontario Ministry of the Environment

District Offices

Central Region

Halton-Peel District Office
1226 White Oaks Blvd.
Oakville, Ontario
L6H 2B9

Barrie District Office
12 Fairview Road
Barrie, Ontario
L4N 4P3

Peterborough District Office
139 George Street North
Peterborough, Ontario
K9J 3G6

Muskoka Haliburton District Office
483 Bethune Drive
Gravenhurst, Ontario
P0C 1G0

Northeast Region

North Bay District Office
Northgate Plaza Suite 109,
1500 Fisher Street
North Bay, Ontario
PIB 2H3

Sudbury District Office
199 Larch Street, 11th floor
Sudbury, Ontario
P5E 5P9

Sault Ste. Marie District Office
445 Albert Street East
Sault Ste. Marie
P6A 2J9

Timmins District Office
83 Algonquin Blvd. W.
Timmins, Ontario
P4n 2R4

Northwest Region

Thunder Bay District Office
435 James Street South, 3rd floor
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Kenora District Office
808 Robertson Street
Kenora, Ontario
P9N 1X9

Southeast Region

Cornwall District Office
205 Amelia Street
Cornwall, Ontario
K8H 3P3

Kingston District Office
P.O. Box 820
133 Dalton Avenue
Kingston, Ontario
K7L 4X6

Ottawa District Office
2378 Holly Lane 2nd floor
Ottawa, Ontario
K1V 7P1

Southwest Region

Sarnia District Office
265 North Front Street, Suite 109
Sarnia, Ontario
N7T 7X1

Windsor District Office
6th floor - 250 Windsor Avenue
Windsor, Ontario
N9A 6V9

Owen Sound District Office
1180 - 20th Street
Owen Sound, Ontario
N4K 6H6

London District Office
985 Adelaide Street South
London, Ontario
NgE 1V3

West Central Region

Cambridge District Office
P.O. Box 219, 400 Clyde Road
Cambridge, Ontario
N1R 5T8

Welland District Office
637 - 641 Niagara North
Welland, Ontario
L3C 1L9

Hamilton District Office
Box 2112
119 King Street West, 9th floor
Hamilton, Ontario
L8N 3Z9